PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, AUGUST 27, 1881.

ORIGINAL COMMUNICATIONS.

NEURASTHENIA.*

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DEFINITION.—"Neurasthenia is a chronic functional disease of the nervous system, the basis of which is impoverishment of nervous force, waste of nerve-tissue in excess of repair; hence the lack of inhibitory or controlling power, physical and mental, the feebleness and instability of nerve-action, and the excessive sensitiveness and irritability, local and general, direct and reflex. The fatigue and pain that temporarily follow excessive toil or worry, or deprivation of food or rest, are symptoms of neurasthenia from which the chronic form differs only in permanence and degree. Nervousness is really nervelessness."†

Drs. Beard and Stretch Dowse both, to some extent, divide the general neurasthenia into cerebrasthenia (brain exhaustion) and myelasthenia (spinal exhaustion). As it is very doubtful whether one condition can exist without the other, I will consider them together simply as neurasthenia.

Stretch Dowse says, "There are many physicians who attribute the symptoms of neurasthenia to a bloodless condition of the brain or spinal cord. I am quite sure that this opinion is incorrect and cannot be supported by any trustworthy doctrine."‡

Beard says that neurasthenia is generally confounded with general anæmia.

Causes.—Anything that will induce expenditure of nerve-tissue without an equal storing up of new material will necessarily cause nerve-exhaustion. Super-activity and development of the nervous system must, without doubt, be the primary cause of such a condition. Civilization, consisting as it does in a sovereignty of the nervous and mental over the purely muscular and animal activities, can therefore claim as an outgrowth neurasthenia.

It is pre-eminently a disease of American civilization; for, whatever may be the cause, the fact is undoubted that American life consumes nervous force more rapidly than that of any other nation. Adult Americans of the upper and middle classes, as a rule, live on the principal, not the interest, of their strength.

Dr. Van Deusen, Medical Superintendent of the Michigan Insane Asylum, says, "Among the causes, excessive mental labor, especially when conjoined with anxiety and deficient nourishment, ranks first. Prolonged exposure to a malarial region may induce it; also great responsibility, with deprivation of sleep."

Dr. Stretch Dowse emphasizes the "heredity of nervous constitutions, which are especially liable to exhaustion and fatigue," as a predisposing cause of neurasthenia. Dr. William Erb says it generally occurs in neuropathic families. Stretch Dowse also says, "I believe that many severe cases of exhaustion of the brain are brought about by not paying sufficient attention to sleep and rest. Excessive fatigue, overwork, worry, sensuality, mental anxiety, shock, grief, are among some of its most important causes."§

"Professional men, and especially clergymen, seem to be more prone to these attacks than others, and it is not an easy matter to assign any especial reason for this. It is quite certain, however, and I believe it is a generally-admitted fact, that the performance of constant routine work without adequate change exercises, although perhaps inexplicably, an undue tension upon the nervous system and nervous centres, which in course of time leads to instability and exhaustion." The law of nature demanding to a certain extent equal development of all the faculties might suggest an explanation of this result.

So-called "cramming" is a potent cause. Stretch Dowse speaks thus strongly: "It is simply a blot upon advancing civilization. It is opposed to all biological laws,—social, moral, hygienic, ethical, physical, and rational."‖

Local diseases, especially of the digestive and of the reproductive organs, are frequent causes. They act as constant irritants to the nerve-centres, and reflexly on the whole nervous system. Sexual excess and abuse are powerful and frequent causes of many of the worst forms of neurasthenia; al-

* Inaugural Thesis, Woman's Medical College, March, 1881.
† Nervous Exhaustion, Beard, p. 115.
‡ Neurasthenia, Dowse, p. 16.
§ Neurasthenia, Dowse, p. 14.
‖ Ibid., p. 42.

though Dr. Van Deusen's experience has led him to an opposite conclusion. Long-continued strain from optical defects has, within a few years, been recognized by those highest in authority as a very frequent cause of nervous exhaustion.

Method of Examining Cases.—We see from the definition of the disease that its symptoms must be largely subjective. The patient and physician must, in the highest degree, work together. The physician necessarily has only the statements of the patient with regard to many symptoms, as data from which to diagnose the case. Knowing how few people can be perfectly truthful witnesses on subjects of special interest to themselves, we must expect to give unwearied patience to eliciting testimony of a subjective and also pathological character. "The effect of this scientific analysis of cases is not to make our patients hypochondriacal, but to remove their hypochondria. The worst enemy of the emotions is the intellect." (Beard.)

As a knowledge of the condition of the different organs is necessary, we must often have the aid of skilled specialists, as oculists and gynæcologists.

Symptoms.—I have found it impossible to classify the symptoms. I will, therefore, follow Dr. Beard's method of describing those of the head first, and going down to other parts of the body. Many of these symptoms I have seen; others I find described in the works of Beard, Stretch Dowse, Beard & Rockwell, Dr. Van Deusen, and in the writings of Bartholow, Flint, Niemeyer, Fothergill, and others. By the latter they are often considered as idiopathic diseases, or as symptoms of structural trouble. Only wide experience could enable one to decide between these conflicting theories.

Tenderness of the Scalp.—Dilatation or Abnormal Activity of the Pupils.—Inequality of the pupils is also a symptom of structural brain disease, but in that case the transitory character of a neurasthenic symptom is wanting.

Sick-Headache.—In certain cases this is the most troublesome expression of the neurasthenia. Fothergill says that in cerebral exhaustion the pain may be frontal, parietal, vertical, or occipital. According to Beard, attacks of sick-headache are safety-valves, preventing other nervous symptoms. Sudden cessation of attacks of sick-headache, without some improvement in the general condition, may, it is said, be the forerunner of severe structural lesions. They are apt to cease after fifty years of age.

Flint evidently directs his treatment of sick-headache to nerve-exhaustion. Niemeyer says that it is often caused by "mental excitement." To have a pathological effect, excitement must be over-excitement, which in this case would mean mental or nervous exhaustion.

Pain, Pressure, and Intense Heat of Vertex.—Symptoms particularly found in the exhaustion of the nervous system attendant upon the menopause, but not confined to that condition.

Expression of the Eyes.—Congestion of Conjunctiva.—Disturbances of Nerves of Special Sense.—Here we have "asthénopie asthénique," showing in the most thorough examinations no lesions sufficient to cause the attending symptoms. Weir Mitchell says he very seldom meets cases of nervous exhaustion without this symptom. Specks, bright flashes, and shadows before the eyes often accompany a slight form of nervous exhaustion. In one case which I have seen, these symptoms come on to a distressing extent after exhaustion amounting only to ordinary fatigue. Subjective noises,—a crackling in the ears, sometimes preceded by numbness amounting to partial deafness. Subjective odors and idiosyncrasies of the sense of smell. A weak or atonic voice.

Deficient Mental Control.—An inability to keep the mind fixed on a given subject: abnormal forgetfulness. The patient, while endeavoring to concentrate his thoughts on a matter that may be of intense interest to him, suddenly finds that he is in the midst of a waking dream. Sometimes the thought of brain-work bringing with it responsibility causes an utter inability to follow a connected line of thought. The patient even after repeated re-readings of a paragraph is unable to retain the slightest idea of its subject. Is not the entire lack of profit from hours of close study done by many students, medical as well as those who are expected to know less of hygiene, caused by this condition? "They find the brain is master and not themselves."

Mental Irritability.—Analogous to the lack of mental control, indeed only a different manifestation of the same symptom, is mental irritability. This is often

the natural habit of mind, irritability and general "total depravity" of temper; but a differential diagnosis can be made with comparative ease.

Hopelessness. — "An instinctive consciousness of inadequacy to the task before us." (Beard.) In organic diseases the opposite condition is apt to exist, and in neurasthenia the presence of this symptom would largely depend on the state of mental control of the patient, and on a clear understanding of his own case. It is a distressing symptom, which ought to be quickly ameliorated by a wise physician.

Morbid Fears.—Until recently the various forms of morbid fear have been considered as hysteria, hypochondria, dyspepsia, biliousness, or even insanity. If accompanied by delusions, they are found in insanity. Drs. Beard, Erb, Westphal, Weir Mitchell, and others, have recently diagnosed them as symptoms of neurasthenia. "The patient knows there is no just objective ground for his fear, but his emotional nature, under the influence of his exhausted nervous condition, overcomes his reason and will." (Beard.) The same author says they are never found in structural nervous disease. Niemeyer and Fothergill, though making no such assertion, lead negatively to the same impression. One form of fear, pathophobia, or fear of disease, is of particular interest to us. Authors differ as to the cause and nature of what most of them consider the disease of hypochondriasis. Beard classes under pathophobia only those cases in which the symptom is recognized by the patient as being merely morbid fear: where there are delusions and hallucinations he calls it insanity. Flint says that, although a mental aberration, it does not amount to insanity. He recognizes the two classes. Although considering it an idiopathic disease, he says, "The morbid conditions often existing in hypochondria and more or less concerned in its causation are various. Among these may be mentioned anæmia, *nervous asthenia*, and dyspeptic disorders." Niemeyer calls it insanity, and speaks of only one class of cases, those in which there are delusions.

Fidgetiness. — This, like specks and flashes before the eyes, may be a habit of life; but even then it is a symptom of nerve-exhaustion, occurring when the patient is fatigued or over-strained from lack of sleep. In one case under my observation it comes on severely during the night, preventing sleep, and is only relieved by vigorous rubbing.

Insomnia.—This condition, reacting as it does on its cause, by preventing one of the most important factors of nutrition,—*rest*,—deserves especial attention. Sleep is probably caused either by a physiological anæmia of the brain, or, according to Foster and other physiologists, by purely molecular changes in the brain, the accompanying anæmia being an effect. In accordance with the first theory, neurasthenia would act to produce sleeplessness by causing vaso-motor paresis, thus bringing about dilatation of the cerebral vessels. If the second be correct, as the character of the "purely molecular changes" is unknown, so would be the exact change caused by nerve-exhaustion. Reference to different authors leaves us in no doubt as to the existence of insomnia arising from neurasthenia, although the explanations of the condition are various.

Drowsiness.—This may be a demand of the system for more sleep. Dr. Van Deusen says there is often a functional derangement of the kidneys, as evidenced by a marked increase of urea in the urine. The drowsiness he attributes to this cause.

Nervous Dyspepsia.—In many cases this is the first noticeable symptom of the neurasthenia. It is diagnosed from other dyspepsias by these peculiarities: it is temporarily relieved by eating; it accompanies other nervous symptoms; it yields readily to nerve tonics, the bromides, and electricity. Stretch Dowse speaks of severe flatulent dyspepsias the result of anxiety and worry.

Deficient Thirst, and Inability to Assimilate Liquid.—The body contains 87 per cent. of water. The amount used by a healthy man in twenty-four hours is about eighty ounces. Any condition which would cause the supply to fall much below this normal standard must necessarily act seriously on nutrition. It tends towards "mummification." "A mummy, which is the body of a man minus water, is a very different thing from a body containing its natural proportion of water." (Dr. Meigs on "Thirst.")

Desire for Stimulants and Narcotics.—The craving of body and mind for anything that will give strength and ease leads in a large number of neurasthenic patients to confirmed inebriety and opium-

eating. Drs. Beard and Stretch Dowse consider this the principal cause of the great increase of opium and alcohol drunkards.

Abnormalities of Secretion.—There is in some cases dryness of the skin, in others excessive secretion, both due to lack of normal stimulus from the governing nerves. The latter is often very troublesome, sometimes general, more often confined to hands or feet.

Spinal Irritation.—This accompanies other neurasthenic symptoms in not a few cases. It is generally considered an idiopathic disease; but the strongest arguments are certainly in favor of its being a symptom of neurasthenia.

General Hyperæsthesia.—This frequently takes the form of sore spots over the superficial bones. It is interesting to note, in this enumeration of symptoms, how many of them we experience ourselves, in less degree, as sequences of fatigue (acute neurasthenia).

Pain, Aching, and Heaviness in the Loins and Legs.—Beard says that sometimes there are present severe, lightning-like, shooting pains, simulating those characterizing locomotor ataxy. Stretch Dowse has been led to a different conclusion. The cases in which this symptom was present have, in his practice, proved that sclerosis of the cord was commencing.

Podalgia, or Pain in the Feet.—One case that I have seen has had, for two years, severe pain in the anterior portion of the ball of one foot. We would expect to find an *Irritable Heart* in this general lack of nervous power. There is often a self-diagnosis of heart disease.

Tremors of Certain Muscles.—This has in one case under my observation become chronic in the muscles of one side of the face. Niemeyer says the course of *tic convulsif* is usually chronic. Beard thinks that chronic cases are generally due to some organic lesion. Analogous to the last symptom are *convulsive movements on going to sleep.* This is another symptom often seen in acute neurasthenia, or fatigue.

Cramps.—Beard attributes the cases of so-called idiopathic cramp, as "scrivener's spasm," etc., to neurasthenia. Niemeyer says "we are unable to point out the anatomical cause," and further on speaks of the "occurrence of muscular spasms during the course of and convalescence from acute and chronic disorders which have an exceedingly pernicious effect upon the assimilation and nutrition of the body." Such cases certainly point to neurasthenia as a cause. These patients are subject to *special idiosyncrasies*,—great sensitiveness to heat or cold, or to certain articles of food or medicine. I have seen several cases in quite good health who, at times, cannot put their hands in cold water without the fingers turning white and numb. There is also a general sluggishness of the circulation, due apparently to lack of vasomotor tone.

Tendency to "go to sleep," or to a localized numbness, is almost always present. The arms, or more frequently but one, may become numb simply from pressure on the bed, waking the patient with the feeling of weight and discomfort.

Profound exhaustion coming on suddenly without apparent cause, *excessive ticklishness, itching, general and local chill and heat*, and nervous chills closely simulating regular malarial paroxysms, are not infrequent.

Neuralgia.—The neuralgias in many forms are often present. They differ from what we might call structural neuralgias in their almost constant change of position.

Beard and Stretch Dowse emphasize the fact that all of these symptoms, and indeed many others, are often present in individuals having the appearance of vigorous health. It is very important to realize that severe neurasthenia is compatible with great muscular development and physical endurance.

Differential Diagnosis.—The importance of making a correct differential diagnosis between functional and organic nervous disease cannot be overestimated. In general, prognosis and treatment are directly opposite. It necessarily is extremely difficult, since many of the symptoms are identical. In the majority of cases only prolonged study of them will enable the most experienced physician to feel sure of his diagnosis. I think Dr. Beard strikes the key-note of diagnosis when he says, "The tendency of neuropathology is not toward but away from the idea of single pathognomonic symptoms. It is by considering groups of symptoms in their relation to each other and to the history of the case" that a diagnosis can be made. Structural as well as functional nervous troubles must of course be perfectly familiar to the physician.

Dr. William Erb says, in speaking of

diagnosis, "The decision will be based chiefly on the great disproportion between the acute subjective complaint of the patient and the almost negative result of objective examination." (Ziemssen, vol. xiii. p. 378.) Dr. Beard gives four general points which I think would be of use to one entering upon the study of this class of cases. They are:

1. The symptoms of organic disease are usually fixed and stable, while very many of those of neurasthenia and allied states are fleeting, transient, metastatic, and recurrent.

2. There are certain, though not well-known or always recognized, symptoms of neurasthenia which do not often, if at all, appear in structural disorders. Among these are general and local tenderness, fidgetiness, sick-headache, asthenopia, flushing, morbid desire for stimulants and narcotics, hopelessness, hypochondria, and morbid fears.

3. In organic disease reflex activity is generally diminished; in functional disease reflex activity is generally increased. This accounts in part for the immense number and variety of symptoms from which the neurasthenic suffer.

4. Neurasthenia and allied troubles are most likely to occur in those in whom the nervous diathesis predominates.

Stretch Dowse puts in the category of probable organic cases many of those showing the more severe symptoms which Beard considers purely functional. The necessity for endless study and experience cannot be too strongly insisted on.

A differential diagnosis must also be made between cerebrasthenia (brain exhaustion) and myelasthenia (spinal exhaustion). This has not yet been satisfactorily done. Stretch Dowse thinks that one condition cannot exist without some degree of the other. This seems highly probable. Still, it is necessary to recognize, if possible, which condition predominates. Neurasthenia must also be differentiated from its allied affections, as hysteria and the like; from anæmia; from certain manifestations of syphilis and various other organic lesions not primarily nervous.

Prognosis.—Favorable under proper treatment, according to Drs. Beard, Weir Mitchell, Erb, Van Deusen, also, to a more limited extent, according to Stretch Dowse. It depends largely on the hereditary diathesis of the patient. Dr. Van Deusen says, "We cannot but regard the early recognition of this condition as of special importance, convinced that properly-directed treatment will, in the majority of cases, stay its progress." Whether we shall be obliged to give a prognosis of organic lesions is a point on which authorities differ. Stretch Dowse says, "I have no hesitation in asserting it to be my firm belief that many of the incurable cases of insanity, locomotor ataxy, progressive muscular atrophy, and many other diseases of the brain and nervous system, commence as a neurasthenia of nervous centres, and when in this state are quite amenable to treatment." Beard does not entirely agree with him, and still cannot deny that "neurasthenia neglected, exasperated by bad hygiene or by bad treatment, may be the precursor of certain forms of insanity." The list of possible sequelæ is as long as a knowledge of the essential nature of the disease would indicate. It is comforting to know that most of them follow *neglected* neurasthenia. The most serious are the following: insanity, especially in the form of melancholia, hysteria, congestion of the kidneys in various forms, exophthalmic goitre, diseases of the reproductive organs and other animal functions, may all be found following neglected neurasthenia, inebriety, and opium-eating.

Treatment.—The two general indications for treatment are want of rest and of nutrition. More accurately speaking, rest is only one means of securing nutrition, but for convenience I shall consider treatment under the two heads.

Rest.—I speak of this first, because I believe that without it all the dietetic and therapeutic measures which could be planned and carried out by a world's congress of physicians would be of no avail. Its attainment is in all cases the first consideration. Symptoms may be ameliorated, but a cure cannot be made without it. By rest, I mean all degrees, from the absolute seclusion and rest as sometimes practised with almost marvellous success by Drs. Weir Mitchell, Charcot, Goodell, and others, to simply removing the cause of over-strain of the nervous system. The former extreme measures are particularly indicated in cases where certain mental characteristics of the patient or of his friends, or certain conditions of home life, render it impossible to attain real rest without them.

The latter equally extreme could only be indicated where the nervous exhaustion is beginning, and the recuperative power of the patient still capable of doing some extra work. The first thing to be done under all circumstances, if possible, is to remove the overwork, anxiety, or mental strain which is present. Of course, by overwork I mean work that is over or above the amount easily accomplished by the patient in his present condition. Mind and body must be put at rest. What constitutes this rest can only be decided in each individual case. One point of great importance in treatment is that no two cases can be treated alike. Each is a study in itself. It must often be very difficult to bring about this necessary change in nervous work, because these very anxieties, responsibilities, and strains of the nervous system are generally so intimately woven in the texture of the daily life of our patients. It will require, on the part of the patient, perfect confidence in the physician; on that of the physician, power to read the moral and mental as well as physical character of the patient, great delicacy of mental touch and expression, and fine tact. Under the question of rest comes that of travel. Such patients are often advised to travel; but it is almost invariably worse than useless. It is, while travelling, impossible to have the regularity in rest, sleep, and food which is of so much importance in these cases, as Stretch Dowse says. Besides that, the meeting strange people, the unseen friction kept up between human beings, is a constant drain on the nervous system. The sight-seeing and intense interest awakened by change of surroundings, though serving to keep the patient's mind off himself, use a large amount of nervous energy. The only kind of travelling that would seem adapted to this class of cases would be long sea-voyages taken under favorable circumstances. The subject of climatic influence might properly be considered here. Stretch Dowse advises cold, bracing, dry climates, never warm ones. He speaks particularly of the valley of the Upper Engadine as being well adapted to neurasthenics. Beard prefers cool mountain-air, but says that warm climates often act as well in these cases as in phthisis. That they should do so seems reasonable, for in them the body is put more entirely at rest, less nutritive energy being required to keep up the normal temperature.

A special and exceedingly important means of securing this necessary rest is the relief of that too common symptom, sleeplessness. We must give the patient sleep in some way. If the symptom quickly yields to the general treatment of the neurasthenia, the case is a very hopeful one. But we cannot wait too long for this result of general treatment. In speaking first of the simple and, if successful, better measures to induce sleep, easily-digested food taken on retiring is one of great value. Half a glass of milk, with a little sherry or whisky if alcohol is well borne, or a glass of Bass's ale, will often insure a good night's rest. While exercise in the evening is one of the best soporifics for the healthy man, the neurasthenic patient is still more exhausted and his trouble increased by it. Drs. Beard and Rockwell have found that electricity, not applied with special reference to this symptom, almost invariably exerts a beneficial influence. "The temporary relief, though far less potent than that of bromide and chloral, is decided. The permanent relief comes gradually and slowly, but surely." The bromides may be resorted to in some cases, or chloral, or opium. Stretch Dowse depends largely on opium, not only for the relief of this symptom, but for the general treatment of neurasthenia. Hammond has found that in some cases the upright position will induce sleep. This, of course, would be where cerebral hyperæmia was present. The physician's ingenuity must often be taxed in combating this symptom, and here, as everywhere, experience is of incalculable value.

Nutrition.—Under this head I will consider the remaining points of treatment,—viz., diet, drugs, and general hygiene.

Diet.—In ill health the natural instinct of hunger as a demand of the body for needed nutriment cannot be relied on. The patient must be guided by certain rules, and, as Dr. James Henry Bennett says, "Those rules which guide us in ill health must be founded on a knowledge of what occurs in health." He says, "The popular idea with regard to food in ill health that it is synonymous with strength is a fallacy and a delusion." The actually accomplished elaboration and assimilation of the food taken is synonymous with strength. The principal indication under diet is to give all the nutrition which is

required to restore the body to perfect health, and to give this in such form and manner as to use as little force as possible in accomplishing the desired end. We must, therefore, give the most easily digested and nutritious food in as large quantities as the system will assimilate. Stretch Dowse feeds some of his patients every hour, with no reference to the kind of food taken. A varied diet is generally best, although the so-called milk-diet, as tested especially by Weir Mitchell, is applicable to some cases. The whole milk is best where it can be digested, for, as Beard says, one of the great wants of the day is an increase of fat in the food. Remembering that animal food is more condensed nutrition than vegetable and should therefore be the principal, but, except in certain cases, not the sole, article of diet, that, as James Henry Bennett says, "Density of structure is one of the principal conditions that regulate the digestibility of both animal and vegetable food," and that the digestive system requires a certain amount of absolute rest, we have the general principles from which to develop special plans of diet for individual cases. Where there is overfeeding, the urine betrays it by an abnormal precipitate of urates.

General Hygiene.—"If we analyze the fundamental laws of hygiene, we shall find that they are all subservient to perfect nutrition,—indeed, are inseparably connected with it." Exercise, physical and mental, air, light, and clothing, are important elements of treatment. The question of exercise, from the massage used in the "rest cure," to vigorous mountain-climbing for a slightly exhausted brain, must be decided for each case. Fatigue must in all cases be avoided. In all forms of exercise, remember that to a certain extent slow movements build up, fast ones tear down. In many cases some degree of mental work is advisable. An occupation that will combine pleasant recreation and useful work will best meet the indications. For perfect nutrition we must have plenty of oxygen. Let the patient live in the country if possible; at least the dwelling-house must be well ventilated, and the sleeping-room supplied with air, pure, though not too cold. During sleep the skin is relaxed, and the general power of resistance reduced to its lowest terms, so that the temperature of the room should not fall many degrees below that of the day. Let him have all the sunlight possible. Dr. Edward Smith, of Brompton Hospital, England, has found that under the influence of sunlight one-third more air enters the lungs than in darkness or artificial light. Under hygiene would perhaps come a form of treatment called by Weir Mitchell "camp cure." I know by experience that modified forms of this life will in many cases secure favorable results.

Clothing must be thoroughly loose, light, and warm. Too much clothing is debilitating. Cold or tepid sponging and modified massage will do much towards keeping up the heat of the body.

Drugs.—Nerve tonics are of course principally indicated. Van Deusen has found quinine the most efficient; but his experience has been in a malarial district. Stretch Dowse depends largely on opium. Beard ranks opium with chloral and alcohol as of value, but much overused and attended with danger. He uses electricity,—hardly a drug, but certainly a nerve tonic,—ergot, arsenic, cannabis indica, caffeine, zinc combinations, the latter particularly useful in choreic manifestations. Bromides in large doses for a short time.

Weir Mitchell uses iron in many cases. Cod-liver oil is often of much benefit. Although electricity has in different hands given varying success, the best results have been with those who have used it most scientifically and thoroughly. Phosphoric acid and the phosphates, also extract of malt, are often good remedies.

It is an almost invariable rule that all remedies are more effectual in this condition if frequently changed or stopped. For instance, sedatives one week, tonics the next, then perhaps nothing for a few days. This plan has been thoroughly tried by Dr. Beard, and in some cases under my observation remedies used in this way have acted satisfactorily that could not have been taken for any length of time continuously.

There is still a wide field open for investigation in the special sequence of remedies, as indicated by the sequence of symptoms in the disease; for, although treatment must always be directed to the general condition, different remedies have almost specific actions in the different stages or manifestations of the disease.

We owe our knowledge of neurasthenia very largely to Dr. Beard, and, as he says, one might graduate from all of our colleges, be well read in general medical literature, and have had dispensary and hospital experience, without having learned anything of this wide-spread, American, functional nervous disease. If it increase in the future as it has in the past, keeping step with civilization, we can comfort ourselves with knowing that, notwithstanding the truth of the above statement, the medical profession are recognizing the existence of such a condition, and that greater advance has been made in this direction in the past quarter of a century than in almost any other department of medicine.

CLINICAL NOTES OF A CASE OF TWIN PREGNANCY.

*Read before the Philadelphia County Medical Society, March 9, 1881,**

BY ALBERT H. SMITH, M.D.

IN bringing this case before the Society it is not proposed to exhibit a unique case, nor one which would be at all extraordinary in its features to the active obstetrician, but merely to present to the general practitioner a case combining a number of features for study, which may impress upon the mind some important points in obstetric theory and practice.

In September last I was called to see a patient in the eighth month of gestation, her last menstruation having ceased January 24 preceding. It was her sixth pregnancy, and during each she had been the subject of much gastric and neurotic disturbance, and at the end of all, except one, delivered by forceps with some difficulty, in the second by craniotomy. During the present pregnancy her general discomforts, and especially her gastric disturbances, had been extraordinarily great, the whole summer and the latter part of the spring being passed in continuous nausea, frequent vomiting, great epigastric distress, sense of abdominal tension, anorexia, invariable suffering after eating, variations between obstinate constipation and profuse diarrhœa, and, as she described it, an utter *malaise* and moral depression, which unfitted her for the enjoyment of all social and family relations and disabled her from the performance of the ordinary domestic duties. As I was absent from home, and she regarded these conditions as merely incident to an advancing pregnancy, she consulted no one about them, took such little palliatives as her past experience suggested, and waited patiently in suffering until my return.

On the 7th of September I was sent for to see her, and found her in a really alarming condition, although not aware herself of the seriousness of her ailments. Up to this time she had been out of town, and came in to see me, expecting to return at once; but her condition was such that I insisted upon her remaining quietly at her house, away from the cares and annoyances of family duties, and so that I could have her under constant observation.

When I first saw her, she was anæmic, waxy, œdematous over her whole surface; the legs greatly swollen, and the hands and face much so, and the whole body presenting marked evidences of anasarca. The pulse was 110, feeble, and quick; the skin dry and harsh; the tongue with a slight fur upon the back part, but elsewhere intensely red, with a marked development of the papillæ, and its surface traversed by deep fissures running longitudinally, very sensitive, painful to the touch or upon motion in the mouth or in the effort at protrusion, and causing her such great distress in eating that she had abandoned the use of solid food from necessity, as well as from disgust for it. Her appetite was altogether gone, and she was living on milk and beef-tea from a sense of duty rather than from any sense of need. Nausea was almost constant, and vomiting very frequent. Epigastric pain and tenderness were marked, and the peculiar feeling of distress in the pit of the stomach, that indescribable, vague sensation so characteristic of the uræmia of pregnancy, was added to the many other discomforts. The bowels were obstinately constipated, the saline and other laxatives being required in large doses to have any effect. Locomotion was very slow and difficult, partly from a muscular soreness, and partly from the very great abdominal distention, with its attendant embarrassment and awkwardness. Dull headache was persistent; drowsiness during the day and wakefulness at night

* This paper has been unavoidably delayed, and consequently appears at a later date than the other papers read at this meeting.

habitual. Vertigo and dizziness often compelled a sudden resort to the recumbent position; and during these attacks the characteristic retinal perversions would cause great alarm,—the field of vision being limited sometimes by a vertical line, sometimes by a horizontal, and sometimes the sight completely lost. Numbness and loss of tactile sense in the fingers, and occasional loss of distinct articulation, were experienced. Altogether, the symptoms attendant upon marked renal trouble were about as decided as often seen. The urination was frequent and scanty.

Upon examination of the urine, it was found by heat and Heller's test to contain fully three-fourths of its bulk of albumen,—by the former, some specimens completely solidifying in the test tube.

I placed the patient at once upon an active course of purgative, diuretic, and tonic treatment, varying the remedies from time to time according to the indications presenting. Under the influence of iron and quinia, her tongue became less sensitive, and lost to some degree the condition above described, so that she was able to take food with rather more comfort; a pill of podophyllin, with nux, aloes, and Tyson's antimonial powder, taken at night, kept the bowels regulated; sodium bromide abated the nervous and cerebral symptoms and relieved the sleeplessness. The diuretic measures were, however, of no avail; digitalis, the alkalines, the old and admirable combination of calomel, squill, and digitalis of the first Dr. Pepper, Basham's mixture, and other ordinary renal evacuants, called forth no response from the kidneys. Benzoate of sodium was followed by a slight increase in the secretion, but no diminution perceptibly in the albumen.

On the 2d of October I decided to try a combination of benzoic acid and lime, basing my hope of gain upon the reputation of the benzoic acid, so confidently recommended by Prof. Charles D. Meigs, and some excellent results I had had formerly from large doses of lime-water in Bright's disease, following the suggestion of some Belgian physician, whose name I cannot now recall. I had Mr. Shinn prepare me a combination of benzoic acid with carbonate of lime, triturated with a little water until effervescence ceased, in proper proportion to form a calcium benzoate, and the resulting paste was placed in Planten capsules, divided into about ten grains each, and was administered in this dose every two hours during the day, beginning in the early morning and continuing till bedtime, so that about eighty grains were taken daily. The result of this treatment was successful beyond my expectation. The laxative pill and the use of the bromides when needed were still kept up, but all other treatment suspended. The amount of urine increased steadily from day to day, and the amount of albumen steadily diminished, until by the 12th it had entirely disappeared. And in proportion to the renal alteration was a change in the general condition and the special symptoms apparent, so that by the time the albumen had disappeared, the only marked signs of disturbance were those necessarily present from the great abdominal distention and pressure upon underlying organs. On the 13th, feeling so much better, and having become disgusted with the constant daily administration of the capsules, the patient begged to be let off from them, to which I consented. For some days there was no decided deterioration of condition; but five days later I saw her, and found that the œdema was decidedly increased, and all the special distresses aggravated, and that she was fast returning to the state first described. On examination of the urine, which had diminished very much in quantity and was more frequently voided, I found the albumen again developed by the tests, though in very much less amount than before. I placed her again on the use of the salt of calcium, which by this time Mr. Shinn had prepared in a separate, beautifully crystallized form, which was found to be soluble to the extent of ten grains to the tablespoonful of water. The same dose was given, and I had the satisfaction of seeing the albumen again disappearing, with the same proportional alleviation of general and special symptoms. On the 22d the patient fell in labor, and the whole combination of ailments rapidly disappeared after her delivery. Not feeling warranted by her condition in insisting upon catheterizing her to examine the water free from any lochial discharge, I had no opportunity of getting it until about the twelfth day, when all signs of albumen failed to be detected.

We will now return to the conditions of the pregnancy which may be regarded as the legitimate causes of these many troubles.

On the 27th of September I made a preliminary examination by abdominal palpation, as is my custom during the last month of gestation in the case of all pregnant women under my exclusive care, to ascertain the positive presence of a fœtus and its relation to the uterine cavity. I soon detected the signs of a twin pregnancy; the great size of the abdomen, its peculiar shape apparent to the eye, irregular and flattened in the median line, would give ground for suspicion. But upon careful abdominal examination the fact became fully established, palpation showing the presence of distinct bodies, with the four large extremities, two near the pelvic entrance and two near the fundus. A firm mass, recognized by its impression given to the hands grasping it between them from side to side as a fœtal head, lay immediately above the brim; the fingers of the left hand, with their tips pressed towards the brim in the left groin, came upon the prominent abutment formed by the chin, while the fingers of the right hand could trace the continuous dorsal plane from the occiput along the nucha and back of the fœtus till it reached the breech in the right lateral region of the uterus below the fundus; from this mass passing towards the median line of the abdomen were easily recognized the thighs and legs, their mobility and outlines being readily distinguishable through the central abdominal wall. But above these, again, towards the fundus, to the left of its median portion, was detected another large mass, whose round, uniform surface and firmness on compression showed it to be another fœtal head, from which a dorsal plane could be traced downward upon the left side, looking anteriorly and terminating above the left groin in the larger but more compressible mass of the breech; the lower extremities of the fœtus were not so easily appreciable, being directed posteriorly and a little behind the body of the first discovered. Auscultation gave two points of maximum intensity to the fœtal heart-sound,—one upon the right side of the median line below the umbilicus, and the other far over beyond the median line upon the left and a little above the umbilicus. I had thus a clear evidence of the presence of two fœtuses, which upon pressure in the median line of the uterus could be entirely isolated,—the one presenting with its head towards the pelvic brim and its dorsum lying posteriorly and to the right, the other with its head near the fundus, its dorsal plane towards the left side anteriorly, the breech under the left groin. The maternal *bruit* was not clearly distinguishable. The patient fell in labor on the morning of the 22d of October, at two o'clock A.M. I saw her at four o'clock, the os being about half open; a head was presenting well down in the brim, with the occiput posteriorly to the right. Abdominal palpation showed no change in the condition previously diagnosticated. At five o'clock A.M. the water discharged, and ten minutes after the fœtus was expelled. Knowing that there was another fœtus, I did not leave the ligation of the cord, as usual, till after the delivery of the placenta, but tied it in two places, cutting between as a precaution against possible bleeding from intercommunication of the two placentæ. On digital examination I found the cervix reconstructed, instead of the flaccid dilated condition found after the expulsion of the fœtus in an ordinary simple pregnancy, there being a firm closed conical neck restored, with about half dilatation; the presenting part of the second fœtus was entirely out of reach. Abdominal palpation revealed a transverse position of the child, the head lying in the right iliac fossa, the breech in the left. The membranes being still unbroken, I easily corrected the deviation. Standing with my back to the patient's face, my right hand made firm but gentle pressure above the right groin upon the head-globe downward and inward towards the median line. At the same time pressing the flat palm of the left hand below the prominence of the breech in the left groin, with its whole surface applied firmly but gently, I made an oblique pressure upward and inward, with a slow vermicular movement, which caused the breech gradually to ride up upon the left uterine wall, as upon an inclined plane, until it reached a point about the middle of the long axis of the uterus, when it slipped quickly upward, and the head, being left free to move towards the median line, under pressure of the right hand, still kept up steadily, glided downward into the pelvic brim. Holding the head in position at the brim with the left hand, and making firm pressure upon the uterus with the same arm, in order to render the membranes tense, I carried the index finger of my right

hand through the os uteri and tore through the membranes; the water discharged, the uterus contracted firmly upon the body of the fœtus, and fixed it in the normal position, and the trouble was permanently removed. The uterine contractions showing a disposition to inertia, I administered fifteen grains of quinia, which again roused them into activity, and at seven o'clock the second fœtus was expelled.

I then made a firm grasp upon the uterus, which soon was well contracted, but, as might be expected with twin placentæ, very large. The placenta not being at once expelled, I made an examination, and found it still firmly implanted upon the posterior wall of the uterus, just within the internal os, the lower margin being within easy reach of the finger. After continued expressive effort upon the uterus, the placenta was displaced and expelled beyond the vulva, although the uterus still remained large. Finding a firm band of membranes passing from the margin of the placenta into the vaginal cavity and resisting any reasonable traction effort to withdraw them, I followed them with the finger up into the uterus, when I found that instead of diminishing in bulk they increased into a large mass of membranes which again terminated in the margin of another placenta attached upon the posterior wall of the fundus. Continued manipulation and expression gradually displaced it, and it was expelled. Upon examination the two placentæ were found connected by a firm cohesion of a portion of the chorial surfaces, separable, however, easily by the finger.

The babies weighed eight pounds each, and were well developed, though not very vigorous.

An injection of hot water, carbolated, caused a firm contraction of the uterus, with no subsequent relaxation, and the puerperium was attended with no complication.

In the history of this case there are presented some points worthy of study, to which I will briefly call the attention of the members of the Society.

Not least among these is the value of this case as showing the influence of abdominal tension as a cause of albuminuria. That there is a predisposition in some patients to the production of renal disturbance from the condition of pregnancy alone, showing itself early,—before any possibility of pressure acting as a developing cause,—there is no doubt; and that in women who have already shown evidence of beginning Bright's disease, the occurrence of pregnancy becomes an aggravation, and is attended by a rapid increase of symptoms, is also well known; but it is none the less a fact that the acute Bright's disease of pregnancy, independent of the presence of an excessive abdominal tension, and consequent persistent and extreme pressure of the enlarged uterus posteriorly upon the abdominal vessels, is altogether exceptional. In other words, that it is a rare thing to have albuminuria, with its attendant anasarca and subsequent menacing of eclampsia, except in primiparæ, when the abdominal walls refuse to relax before the distending force brought for the first time to bear upon them, or exceptionally in multiparæ, where from some preternaturally rapid or extreme enlargement of the uterine tumor in the latter months of gestation, subjecting the abdominal walls to much more violent distention than in any previous pregnancy, the same result is brought about. Such cases are found in multiple pregnancies, and in excessive amniotic dropsy. In the patient under notice in the five previous pregnancies no renal symptoms had developed, even in the first; nor in the interval between this pregnancy and the preceding was there any deviation from a normal standard of health. Yet at about six months of gestation, when she began to suffer from a sense of great abdominal tension, the evidence of renal disturbance began to show itself, and became steadily more alarming, except when held in partial control by treatment, until the emptying of the uterus, after which it rapidly disappeared, the urine being at the end of twelve days entirely clear of albumen or casts.

In connection with this point it is worth while to call attention to the beneficial effects derived from the calcium benzoate, which could not be looked upon as a mere coincidence, dependent upon relief of pressure from uterine subsidence, nor upon the influence of other remedies, inasmuch as the renal symptoms abated steadily from the time of its administration, and began to increase again so soon as it was suspended. My experience with it in other cases has confirmed my belief that it will prove an efficient aid in controlling

are attached is swung between two levers, which are fastened to a cross-bar running the whole length of the box containing the jars, and revolving in slits cut into the end boards of the box. Outside of the box two long levers are fastened to the end of the cross-bar, the one carrying a weight sufficiently heavy to counterbalance the plates with the board upon which they are mounted, and the other having attached to it a treadle. When the battery is not in use, the plates are lifted out of the fluid by the counterweight and remain suspended above the jars. By placing one foot upon the treadle and making pressure upon it, the plates are immersed and the current is generated.

This mechanism, besides being very convenient and doing away with the necessity of having an assistant to immerse the plates and remove them from the fluid, places the amount of current to be used, and consequently the degree of heat in the knife, completely under the control of the operator; for the more pressure is exerted upon the treadle the deeper are the plates immersed and the more electricity is obtained. I am indebted to Mr. Griscome, of the Dynamo-Electric Company, for the idea and application of this mechanism. Another great advantage in this battery over all others is the fact that it can be used frequently without a necessity of renewing the fluid, for the jars are so large as to hold a large amount of fluid, so that it takes a long time before it becomes exhausted.

In using galvano-cautery for operations within narrow cavities, such as the larynx and nares, I found great difficulty in preventing the injury to other parts than those to be operated upon by the heat developed in the conducting wires of the knife, which usually are only covered with a thin layer of floss-silk. This readily burns off and leaves the wires bare, especially near the platinum loop, and, being of a black heat, may inflict very painful injuries to parts not intended to be burned. In order to obviate this difficulty, I searched for a substance with which the conducting wires could be insulated, and which would be at the same time a non-conductor of electricity and of heat, and found it in a substance called vulcanized fibre, manufactured in Wilmington, Delaware. The knife which I hand around has been in daily use for a number of weeks, and you see that the insulating sheath does not show the slightest trace of having been burned or injured by the heat, and when the current is passing making the platinum loop white hot, the sheath can be touched with the fingers without feeling more than warm.

1346 Spruce Street.

FATAL OTITIS.

Read before the Philadelphia County Medical Society, June 22, 1881,

BY G. C. HARLAN, M.D.,

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FOR the notes of the case which has recently called my attention to this subject I am indebted to my clinical assistant, Dr. C. H. MacIlwaine:

Sarah G., a delicate-looking child, 4 years of age, was brought to the dispensary of the Pennsylvania Hospital on the 6th of November, with the following history. She had measles two years ago, and there has been almost constant discharge from both ears since. Four months ago she was struck on the left ear, and since then there has been increased discharge from that ear, and pain, which has been constant and at times intense. For the last three days the pain has been much worse, keeping her awake at night. There has been no discharge from the right ear for some weeks. There is now no facial paralysis and no external swelling. The child is too nervous and restless for a thorough examination of the ear. Ordered ear-douche of boracic acid and warm water every two hours, and morphia at night.

November 11.—Mother noticed yesterday that the face was drawn to the right side, and there is now partial facial paralysis. Ether administered, and external meatus found filled with polypi, which were removed with forceps. Posterior and upper wall of meatus eroded, membrane destroyed, and ossicula exposed. Sol. argent. nit., gr. xl ad ℥j, applied on pledget of cotton.

November 13.—Rested well after the operation; has slept nicely for two nights, and, though the appetite is poor, she looks much better than before the operation. The facial paralysis is now complete; the left eye cannot be closed.

November 19, eight days after the operation.—Seen by Dr. MacIlwaine at her home. Intense headache and flushed face to-day. Temperature, 102°. Does not complain of pain in the ear, but is very restless.

November 23.—Has had constant headache and fever since the 19th; cannot be kept in bed; insists upon being held in her mother's

arms all the time, but is perfectly quiet if not disturbed.

November 26.—Seems in much the same condition. Great deal of headache, not located in any particular part; temperature high; quiet in mother's lap, and perfectly conscious.

November 28.—Slept fairly during the night, and seemed in about the same condition this morning, but became comatose, and in an hour afterwards died quietly.

Post-mortem, forty-eight hours after death, by Dr. MacIlwaine.—Membranes of cerebrum congested, but otherwise healthy. No sign of disease in upper surface of petrous bone. When cerebrum was removed, a bulging of the tentorium was noticed on the left side, and an abscess of the cerebellum, containing about half an ounce of pus and clotted blood, was discovered beneath it. The dura mater over the abscess seemed healthy, but the pia mater was partly destroyed and the remainder covered with lymph. The abscess was situated immediately over the entrance of the internal auditory meatus. The dura mater covering the lower aspect of the petrous bone was healthy, except at the entrance of the meatus, the edges of which were bared and bathed in greenish pus, which filled the meatus. The rest of the brain and its membranes were healthy. No other organ examined.

Examination of temporal bone.—Anterior wall of external meatus destroyed, except a narrow, jagged scale of bone; posterior portion bare and eroded; membrana tympani entirely destroyed; inner wall and floor of tympanum bare; mucous membrane about entrance of Eustachian tube and on roof much thickened; malleus and incus in place, but partially eroded; no trace of stapes; fenestræ rotunda and ovalis uncovered, and water injected into them passed out at once through internal auditory meatus; the floor of the tympanum was as thin as tissue-paper, and there was a large perforation through the anterior edge of the jugular fossa; the portion of the fossa corresponding to the floor of the tympanum was bare and rough; the vein was sound and apparently healthy; on the inner surface of the bone the dura mater was everywhere perfectly healthy, except at the mouth of the internal auditory meatus; around the margin of this opening there was a free, loose edge of dura mater, raised by the pus that filled the meatus. The facial and auditory nerves, embedded in this pus, were in a sloughing condition; on removing them the walls of the meatus were found entirely bare throughout their whole extent, but there was no caries. The foramina at the bottom of the meatus were of their normal size. The passage of water from the labyrinth to the meatus would seem to have been due to the destruction of the lining membranes of the bone. The thick greenish pus which filled the interior auditory meatus must have been formed there by the destructive inflammation of the dura mater lining it. This canal being a part of the intracranial cavity, there was no further obstruction to the progress of the disease to the cerebellum.

The unprotected condition of the jugular vein, which really formed a part of the floor of the tympanum, not even covered by mucous membrane, illustrates the necessity for care in the use of instruments in the middle ear; and the fact that fluids poured into the porches of the ear may, even without the presence of caries, pass directly to the brain, has practical interest.

Four other cases of death from disease of the ear have occurred in my practice, including one in the Pennsylvania Hospital while I was resident surgeon.

Case II.—The notes of this case have, unfortunately, been lost, and so long a time has passed that my memory can recall only its general outlines. The patient presented himself with complete paralysis of the facial nerve, which he stated was the result of a blow upon the side of the head received the day before. What appeared to be a polypus was discovered in the external auditory meatus of the same side, but it proved, on removal, to be the end of a broken knife-blade covered with granulations which had sprung up around it. Its point was embedded in the bone. The patient then stated that he had been assaulted by some boys about a year before, who had inflicted several wounds with penknives, one of them in the ear, but that he had suffered only a slight discharge and was not aware of the presence of a foreign body. There was extensive caries of the meatus and tympanum, and death resulted in a few weeks from direct extension of the disease to the brain.

The three other cases have already been reported, but may be briefly referred to. The specimen I now present is the temporal bone of a patient whose case was reported in the *Philadelphia Medical Times* for November 16, 1872.

Case III.—She was a delicate girl, 22 years of age, whose mother had died of phthisis. She had been subject to occasional discharge from the ear since early childhood, and death resulted from an abscess of the brain following upon a violent attack of otitis, which involved the tympanum, mastoid, antrum, and external meatus. The abscess was as large as a hen's egg, and rested on the upper surface

of the petrous bone, from which it was separated by the membranes and a thick layer of lymph. There was a small opening through the membranes. An interesting point in the history of the case is that the diagnosis of cerebral disease was confirmed, some time before death, by the ophthalmoscope, which revealed marked choked disks in both eyes, though there was no noticeable diminution of vision. Nearly half of the roof of the tympanum from the entrance of the Eustachian tube backward is destroyed, and the upper part of the posterior wall is gone, the tympanum and mastoid antrum forming one continuous cavity. Nothing remains of the roof of the mastoid antrum but a thin bony scale with large perforations. The outer part of the posterior wall of the external meatus and the bone around it are honeycombed, and contain sinuses leading to the mastoid cell. Notwithstanding the extensive destruction of the walls of the tympanum, the portio dura has escaped. There was no facial paralysis, though the nerve was exposed at several points by openings in the aqueduct of Fallopius. The membrane was destroyed, and there was a large polypus just within the tympanum. The development of the temporal bone is very deficient for an adult, and the mastoid process is little more than rudimentary. What there is of mastoid is sclerosed, and shows only a trace of the vertical cells,—a not uncommon result of chronic inflammation of the bone.

The two other cases were of malignant disease.

Case IV.—The specimen presented is from a woman 55 years of age, who applied for relief from a swelling behind the right ear, nearly the size and much the shape of half a hen's egg. It had so much the appearance of an abscess with very thick tense walls that two free incisions had been made in it by a surgeon. These incisions had gaped widely, and fungous granulations were springing from them. They soon assumed the character of foul-looking, sloughing ulcers, with an offensive, sanious discharge, and rapidly increasing in depth. An opening, through which the discharge flowed profusely, was formed into the external meatus and extended until the auricle was almost dissected off. As the disease progressed inward, the portio dura was involved, and the right side of the face was completely paralyzed. After several months of intense suffering, death resulted from direct extension of the disease to the brain. Nearly the whole of the mastoid portion and a part of the petrous and squamous portions of the temporal bone, the wall of the external meatus, and the angle of the parietal bone have been destroyed. The tympanum has been laid open by the destruction of its membrane and a part of its roof. When we consider the great extent and rapid progress of the disease and the close proximity of the lateral sinus, internal jugular, and carotid, it seems singular that there was no considerable hemorrhage. The carotid foramen is to a great extent, and the jugular foramen almost completely, obstructed by a bony deposit.*

Case V. is that of a little girl, 3 years of age, a patient in the Eye and Ear Department of the Children's Hospital. A year before coming under observation she had scarlet fever, and had not been in good health since. Three months before, she became restless and seemed in pain; and two months before, a slight discharge of blood from the meatus was observed for the first time. There was a fluctuating swelling beneath and behind the left auricle, and in the external meatus a thick, purulent discharge and a firm, rounded polypus the size of a pea, or larger. The facial nerve was paralyzed. The polypus was removed and an incision made into the external swelling. From the latter there was a copious discharge of offensive pus. In about two weeks the wound gaped and a fungous growth appeared in it. The polypus rapidly reformed, but became strangulated by constriction in the meatus and sloughed. The child died in about eight weeks after she was brought to the hospital. No post-mortem examination was permitted beyond the removal of the tumor. Extensive erosion of the temporal bone could be felt by the finger introduced into the wound. The extension of the disease inward was fully proved before death by paralysis of the seventh, third, and fifth nerves. Microscopical examination showed the growth to be a round-celled sarcoma.†

Though malignant disease of the middle ear is very rare,—so rare that it is not even mentioned in some of the standard text-books on aural surgery,—it is well to

* Reported in Transactions of Pathological Society of Philadelphia, vol. iv.

† Philadelphia Medical Times, December 13, 1873.

bear in mind the possibility that an aural polypus or a mastoid swelling may have this character, and that active interference may only hasten the fatal result.

Disease of the ear may result in death by means of intracranial abscess, meningitis, hemorrhage from eroded vessels, thrombosis of the lateral sinus, or purulent infection with metastatic abscess in distant organs, with or without accompanying lesions of the brain. These are not merely theoretical possibilities, but matters of history, with abundant records in medical literature to substantiate them all. The most frequent of these fatal lesions is intracranial abscess; and Lebert estimates that about one-fourth of all cases of abscess of the brain have their origin in caries of the petrous portion of the temporal bone.

Before attempting to trace the various paths that the disease may follow to its fatal termination, it may be well to recall some of the more important anatomical relations of the ear. The upper surface of the petrous bone is in relation with the cerebrum, and its posterior surface and the mastoid process with the cerebellum and the petrosal and lateral sinuses; the dura mater in both cases performing the part of periosteum. On its anterior inferior surface, which forms a part of the base of the skull, are found the carotid canal and jugular fossa. In the upper surface of the petrous bone are the upper walls of the tympanum, the mastoid antrum, and the labyrinth; on its posterior surface is the posterior wall of the labyrinth, and on its inferior surface the floor of the tympanum and of the labyrinth, while the inner wall of the mastoid cells forms the lateral sulcus. On all these surfaces there is more or less direct communication between the ear and the brain through foramina for the transmission of vessels and nerves. When disease is communicated directly from the roof of the tympanum or mastoid antrum, the cerebrum suffers; when it extends from the labyrinth or mastoid cells, including the posterior wall of the antrum, the cerebellum is, as a rule, involved; while the carotid artery and jugular vein are endangered by caries of the anterior wall and floor of the tympanum.

Whatever course the disease may eventually take, its origin is usually in the tympanum, from which it may extend in various directions. The most frequent is through the roof of the tympanum to the middle lobe of the cerebrum which rests upon it. The tegmen tympani varies much in health, and is sometimes as thin as parchment, or even deficient in places, leaving the mucous membrane of the drum in contact with the dura mater. In the greater number of post-mortem examinations made after death resulting from otitis, the roof of the tympanum has been found carious. In some cases meningitis has been the immediate cause of death; but the most frequent cerebral lesion is abscess. The abscess may be in direct contact with the carious bone, as in Case III., but is frequently—according to some authorities, in the majority of cases—at some distance from the drum, and with sound brain-substance intervening between them. The pathology of the latter class of cases is somewhat obscure. The disease is generally supposed to be conveyed through the blood-vessels, probably by emboli, though the absence of symptoms of the condition known as pyæmia, and the fact that the abscess is always found on the same side of the brain as the otitis, would seem to show that it is not exactly of the nature of typical metastatic abscess. As a proof of unsettled pathology, it may be mentioned that *bacteria* have been called upon to do duty in explanation. McBride and Bruce and Binswanger* believe that cerebral abscess resulting from disease of the temporal bone, but separated from it by healthy brain-substance, may be caused by infectious micro-organisms passing into the circulatory system from the purulent points, or transported along the perivascular connective tissue. As the roof of the horizontal mastoid cell, or mastoid antrum, is continuous with that of the tympanum, and the partition of delicate cancellated bone between them is easily broken down, they are likely to constitute practically one cavity in cases of long-standing disease. The propagation of disease from the roof of this cavity to the cerebrum is well illustrated by Case III.

Acute inflammation of the tympanum also sometimes extends to the brain. Toynbee reports a case of cerebral abscess without caries of the bone, occurring in two weeks from the commencement of an otitis media; and other somewhat similar cases are on record.

Another direction that the disease has

* Journal of Anatomy and Physiology, vol. xiv. p. 360.

taken in quite a number of reported cases is through the labyrinth and internal auditory meatus to the cerebellum, as in Case I. The destruction of the membrane of the fenestra rotunda or fenestra ovalis at once opens a free passage for pus from the tympanum to the labyrinth. In addition to this there is an anastomosis between the blood-vessels of the tympanum and those of the labyrinth. When the purulent process is once established in the internal ear there is no other obstruction to its progress towards the brain than the thin cribriform plate at the bottom of the internal auditory meatus, which, as we have seen, may be readily passed. Indeed, Hyrtl has stated that "it is not impossible that the perilymph of the vestibule is cerebro-spinal fluid." The middle and the internal ear have also been found to communicate through a perforation of the promontory by caries. Another possible channel of communication between the tympanum and the internal auditory meatus is along the course of the portio dura in the aqueduct of Fallopius, though I am not aware that any case of the kind has as yet been reported.

Though any other than a fatal result of extensive necrosis of the labyrinth must of course be extremely rare, several recorded cases prove that it is not impossible.* One was reported in the *Philadelphia Medical Times* for June 15, 1871, by Dr. W. W. Keen, to whom I am indebted for the opportunity to show this very interesting specimen, which was removed through the external meatus. It consists of the "entire petrous portion of the temporal bone, much eroded, but still showing the auditory meatus and the walls of the three semicircular canals. Of the carotid canal no distinct trace could be found, but a groove on the inferior surface seemed to indicate where it had been." The patient, a child five years old, lived to grow fat and hearty afterwards, though what was left of life—with hearing, sight, taste, and smell entirely lost—was hardly worth the preserving. The subsequent condition has been more favorable in some of the other cases.

A frequent course of the disease in its fatal progress towards the brain is by way of the mastoid cells. Mastoid suppuration may prove fatal through basilar meningitis, inflammation of the cerebellum, with or without abscess, or hemorrhage from or thrombosis of the lateral sinus. A glance at the relations of the mastoid process to the cerebellum and the lateral sinus can leave no doubt of the danger of a destructive inflammation of that bone or of a collection of pus in its cells. The operation for giving exit to such collections by perforating the bone has been successfully performed in a number of cases, and may now be considered as one of the established operations of surgery. That extensive mastoid disease may, however, sometimes spontaneously end in recovery in young subjects is shown by the not very unfrequent exfoliation of large portions of the bone in children.

For the opportunity to illustrate, by means of two specimens, the extension of disease from the mastoid cells to the lateral sinus I am indebted to the kindness of Dr. W. W. Keen and Dr. Morris Longstreth. The case from which this specimen was taken is reported in vol. viii. of the Transactions of the Philadelphia Pathological Society. There is a large carious opening from the mastoid cells directly into the lateral sinus. The sinus is filled with a gangrenous thrombus extending to the torcular Herophili. The superior petrosal sinus is also filled by a thrombus. The septum between the tympanum and the mastoid antrum is destroyed, but the other walls of the tympanum are intact, and the ossicula are in place. There was localized softening of the cerebellum. The mastoid was trephined.

The other specimen is from the museum of the Pennsylvania Hospital, and has also been presented to the Pathological Society (vol. x.). The patient (S. G., 49 years of age) had had purulent aural catarrh for a month before death, following upon an attack of erysipelas of the head and face, and presented cerebral symptoms towards the close of her life. The wall of the lateral sulcus is destroyed, and the partitions of the mastoid cells, both vertical and horizontal, are broken down, so that the mastoid space and the sulcus form a single unpartitioned, ragged cavity, which was lined with dense granulations. There is a large carious opening between this cavity and the external meatus. The squamous portion of the temporal bone is diseased, and is nearly separated from the rest through the petro-squamous suture. The

* See Wien. Allg. Zeit., Nos. 41, 43, 45, 1864, and Roosa's edition of Tröltsch.

auditory ring is entirely separated from its bony connections and is held only by the soft parts. The roof of the tympanum was removed for examination of the cavity, which was found much changed: its lining membrane was covered with granulations, and it contained thickened pus and shreds of tissue. The ossicles were in place, but partly denuded, and were bathed in pus. The Eustachian tube was also filled with thickened pus. The lateral sinus was filled with a black clot, and there were purulent basilar meningitis and inflammation of the anterior and under surfaces of the cerebellum.

Still another fatal course that tympanic disease may take is by involving the carotid artery or jugular vein. The bone separating the tympanum from these vessels is sometimes extremely thin. That forming the floor of the tympanum and the jugular fossa has been found deficient, from defective development, having openings where the mucous membrane of the drum was in contact with the vein. A number of cases are recorded in which death resulted from injury to these vessels. In several instances fatal hemorrhage from the artery has been prevented by ligation of the common carotid.

Direct extension of the disease from the middle ear to neighboring vital parts is not the only danger that threatens the life of a patient with purulent aural catarrh. A number of cases are on record in which death has resulted from pyæmia with metastatic abscesses in distant organs. This is by no means surprising when we consider that the temporal bone contains large cavities which have direct venous communication with the intracranial sinuses and which are frequently found filled with pus. The bone itself has also free vascular communication with the dura mater on one hand and the mucous membrane of the middle ear on the other; and it is a well-established fact that disease may extend from the ear to distant parts, as well as to the brain, even without the intervention of caries. For an illustration of this fact I am indebted to Dr. Burnett. This specimen is from a patient whose case is reported in vol. vii. of the Transactions of the Pathological Society of Philadelphia. There was a copious purulent discharge from the right ear, with intense pain in the ear, mastoid region, and right side of the head. Dr. Burnett trephined the mastoid with great temporary relief to the patient, who was thought to be convalescent, but who died sixteen days after the operation. The brain and the intracranial sinuses were healthy, but metastatic abscesses were found in the liver and lungs. The membrane was gone, and the tympanum and mastoid cells were filled with a cheesy mass of purulent débris. There was no caries, but the bone presents evidences of disease in hyperostosis of the outer wall of the mastoid cells and minute perforations of the inner wall.

The specimens that you have seen illustrate the extension of disease from the tympanum through its roof, through the internal ear, and through the mastoid to the brain, and through the circulation to distant organs. I have not been able to obtain one showing the progress of disease through the floor of the drum; but in Case I. the conditions of a fatal issue by this direction existed, in the extreme thinning and partial destruction of this part of the bone; and it could scarcely have been long delayed if it had not been anticipated by the deeper lesion. These specimens speak for themselves with the eloquence of evident facts, and do not need extended comment.

Von Tröltsch, after describing to his class the anatomical relations of the middle ear, exclaimed, "Do you know a small cavity in the human body which borders in a similar manner on so many important organs, and in which we should, therefore, so anxiously regard purulent processes and their common consequences?" It must be freely and thankfully admitted that the appreciation by the profession at large of the grave importance of these processes has of late years wonderfully advanced; but I may be excused for expressing the conviction that they are, even yet, far from being generally accorded the anxious attention that they deserve. Perhaps the prevalence of polypi in a given number of cases of otorrhœa may be considered as a fair indication of the degree and kind of care that the patients have received; and I have noticed a decided diminution in the proportionate number of these growths occurring in both hospital and private practice in the last ten years. It is, however, hardly an exaggeration to say that such a thing as an aural polypus should be almost unknown in a civilized community. It is not many years since, even among the

shining lights of the profession, the favorite prescription for a chronic purulent otitis was to let it alone, enforced, perhaps, by the general dictum that it was not well to meddle with the ear, or accompanied by the comforting assurance that the patient, if a child, would "grow out of it." It must be confessed that this rather barbarous expression still sometimes, though happily not often, crops out in the history of a case; and it is true that the patient may grow out of it, so far as the continuance of the loathsome discharge and the danger to life are concerned, and, at the same time, grow out of his hearing. But, on the other hand, it should never be forgotten that he may grow into it more deeply and dangerously every year, until life is sacrificed at last to the unopposed progress of a disease which in its earlier stages would almost certainly have yielded to careful and skilful treatment.

NOTE ON SCHUYLKILL WATER.

Read before the Philadelphia County Medical Society, June 22, 1881,

BY HENRY LEFFMANN, M.D.

IT is my purpose to take only a few minutes to give some results, or rather conclusions, which have been derived from recent analyses of our water-supply. Very little is heard about the hygienic relations of Schuylkill water, probably because public opinion has long since settled to the conclusion that it is a good water. Nevertheless, as visitors sometimes complain of it, and as newspapers in their flings at the water department not infrequently condemn the quality as well as the quantity of the supply, I have ventured to take up the Society's time long enough to say that examination made at various times during the winter and spring have shown that the water is of fair quality and cannot be regarded as an active cause of disease in our city. It is an insipid water, lacking the pleasant taste and sparkling character of spring water, especially of the so-called hard waters, and this lack is often taken as evidence of impurity. During the periods of freshet it becomes quite turbid from the suspension of particles mostly silicious; but such suspended matter rarely exceeds a grain or two to the gallon, and the individual particles are too minute to cause any irritation. In the turbid water several species of harmless animalcula can usually be detected. In making any brief statement of the composition of a water we are embarrassed by the fact that the modern methods of water analysis are very strictly technical: they give us not the impurities themselves, but the amount of certain indications of impurity. Without stopping to explain the mere chemical phase of the question, I will simply give a comparison of a recent analysis of Schuylkill water with that of two samples of London water analyzed by the same method and considered excellent waters:

	Schuylkill.	Kent Company, London.	Chelsea, London.
Chlorine	0.53	1.2	0.51
Ammonia, from organic matter	0.0028	0.0022	0.0035
Total solids	7.00	34.00	17.64

All the figures are grains to the imperial gallon.

The Society of Public Analysts of England has recently proposed a system by which each factor in the composition shall be valued by an arbitrary number, and all the numbers being added will give us a figure representing the standard of the water. In good waters this sum will not exceed 35. Schuylkill water varies from 17 to 23, so that it comes decidedly below the limit. In regard to Delaware water I may remark that, so far as I have examined it, it is not as good as the Schuylkill water. The amount of organic matter is higher, and the microscopic examination shows forms of life which are frequent in decomposing materials.

TRANSLATIONS.

PURPURA HÆMORRHAGICA AS A NEUROSIS.—The nervous origin of certain cutaneous affections, says Dr. H. Leloir in *Le Progrès Médical*, is a question of great interest at the present time. Recent observations tend to confirm the opinion of Drs. Stieldorf, Wagner, Henoch, Couty, and others as to the nervous origin of some cases of purpura. Rigal and Cornil (*Soc. Méd. des Hôp.*, Fév. et Mars, 1879), in discussing a case of acute purpura hæmorrhagica of which they made an autopsy, propose the following conclusions: 1. Severe purpura hæmorrhagica is a group of symptoms constituted essentially by hemorrhages in the skin and mucous mem-

branes and by progressive weakness resulting in nervous exhaustion not always commensurate with the amount of hemorrhage. 2. Whatever are the other morbid conditions which may have been concerned in the production of a given case of purpura hæmorrhagica, it is necessary to include some trouble with the vascular innervation if we are to understand the causation of the hemorrhages. This nervous disturbance may be either excitation of the sympathetics or diminution in the action of the vaso-motor centres. 3. The alterations in the blood and the lesions of the vascular walls appear to be variable and inconstant. While admitting their importance, they appear insufficient to produce purpura hæmorrhagica without some nervous perturbation.

Mackenzie (*Medical Times and Gazette*, March, 1877), referring to a case of purpura occurring in a young girl, and disappearing under the influence of treatment, only to reappear anew at the menstrual period, and giving rise to fatal symptoms, seems to think the affection due to an intracranial lesion. He does not, however, in the opinion of Dr. Leloir, bring forward sufficient proof to sustain this view.

Maiocchi (*Lo Sperimentale*, February, 1877) thinks that purpura rheumatica belongs neither to a diathesis nor to a dyscrasia nor to an infection. He makes it out an affection of the vaso-motor system. Cavalier (*Bull. Gén. de Thérap.*, 1879) reports a case of purpura hæmorrhagica alternating with paralytic symptoms. Finally, Shand (*Lancet*, July, 1879) has obtained good results in purpura hæmorrhagica by the use of electricity.

The attention of surgeons has long been drawn to certain scarlatiniform eruptions showing themselves after wounds and injuries. Authors are, however, far from being in accord in their views on the nature of these eruptions.

Stirling (*St. George's Hospital Reports*, vol. x., 1879), in an important and judicious memoir based on thirty-nine personal observations, and after discussing all the cases of the kind which have been reported, concludes that these eruptions are sometimes those of true scarlatina, while at other times they are simply scarlatiniform and non-infectious in character, resembling in pathogenesis certain erythemata, herpes, and certain papular eruptions which show themselves after injuries. He classes them as vaso-motor eruptions, regarding them as similar to the rashes which often occur in recently-parturient women. Dr. Kidd (*Dublin Journal of Medical Science*, April, 1880), who has studied these last, calls them uterine erythemata or "roseola uterina." This rash shows itself without febrile disturbance or general symptoms on the third to the fifth day after confinement, and exercises no unfavorable influence on the course of the confinement.

Frilet ("Contribution à l'Étude des Manifestations herpétiques dans leurs Rapports avec le Traumatisme") asserts the fact of the occurrence of herpes after traumatism, and says that, although in some cases it may be accounted for by reflex action, yet it is usually the expression of a general cause exercising its influence on the whole organism, which the injury sets in action. Finally, Auspitz, in his new classification, has the class "angioneurotics," which includes peliosis rheumatica.

TREATMENT OF INTERMITTENT FEVER BY SULPHATE OF QUINIA BASED ON THE EPOCH OF ITS MAXIMUM ACTION—PREVENTION OF RELAPSE BY QUINOIDINE.—In an interesting paper on this subject, published in the *Bull. Gén. de Thérap.* (1881, p. 347), Dr. Jules Augé, after speaking of the usual methods of giving quinia in use at present, suggests some modifications, as follows. He prefers to give the sulphate of quinia in powder covered with the usual bread-wafer, as being most efficient. In the treatment of the quotidian type of fever in adults, Augé gives eight grains of the sulphate of quinia in two equal doses, the first given four hours and the second two hours before the expected attack. Immediately after taking the medicine the patient swallows a bowl of soup or broth. The same dose is given daily for four days. In children from three to ten years of age, three- to four-grain doses are given in the same way. To infants, the syrup of quinia, composed as follows, is given:

℞ Quiniæ sulph., gr. xvj;
Acid. sulphuric. dil., q. s.
Dissolve, and add
Syrupi acid. tartaric., ʒviiss;
Syrupi simpl., ʒx.

The dose is two teaspoonfuls (*i.e.*, gr. ij) four hours before the attack, and two more two hours before it. Then the breast or bottle, or a little soup, is given, according to the infant's usual diet.

In tertian ague four grains of quinine are to be given four hours before the attack, and the same quantity two hours before it, with the soup as usual after each dose. On the day of intermission four grains are taken in the morning, and four more in the evening. Similar doses are given in the same way through two or three attacks of fever and apyrexia. Commonly, this course of treatment lasts four to six consecutive days. Subsequently quinoidine is administered. In children the plan followed is similar, but the syrup of quinia is used in appropriate quantities.

In quartan ague Dr. Augé gives eight to twelve grains on the day of the fever, divided into two doses and taken as above. On each day of apyrexia he gives four to five grains morning and evening, and this is kept up during two complete series of fever and apyrexia. Then, during the two series following, the quinine is replaced by a few teaspoonfuls of wine of quinoidine. It is then employed once more during a couple of series, and is subsequently permanently replaced by the quinoidine continued during a fortnight or more.

This method of treatment is particularly efficacious in those forms of malaria which are apt to occur in late autumn or winter, and which are so apt to be accompanied by engorgement of the abdominal viscera, chiefly of the spleen, and with malarial cachexia.

When quinine cannot be used on account of its cost, Augé strongly urges the employment of quinoidine, which, after a long series of experiments, has been found a most efficient substitute for quinine. The dose is larger, but it is soluble in water, and therefore more easily administered. It may be given in powder, pills, dragées, tincture, or syrup. For infants at the breast, the dose is one-sixth grain, and it runs up to eight to sixteen or twenty grains for adults. The method of administration recommended by Dr. Augé is that above given for quinine.

To prevent relapses, Dr. Augé gives the wine of quinoidine until the spleen is reduced to its normal condition. His conclusions are, essentially, that the maximum action of quinine is shown two to four hours after its ingestion; that it should never be taken fasting; that the most soluble forms of the drug are to be preferred; that wine of quinoidine should follow quinine to prevent relapses.

THE ETIOLOGY OF GANGRENE OF THE MOUTH (NOMA).—Dr. Krasine (*La France Médicale*, 1881, p. 657; from *Vratchebniya Vaidomosti*) gives the case of two persons—a mother and daughter, aged respectively 48 and 8 years—who, following the endurance of great hardship, were attacked with gangrene of the face. Examined in the hospital two weeks after the beginning of the disease, for which neither treatment nor attention had been previously obtained, the greater part of the right cheek was found in both cases to have been destroyed by gangrene. The patients died after a fortnight's stay in the hospital, the disease having run a course of a month, which is rare in fatal cases. Krasine, in reporting the cases, discusses the pathogeny of noma in general. It is rarely found in adults,—usually in children of ten to twelve years, following eruptive or intermittent fevers. Its occurrence is favored by bad alimentation, damp dwellings, and the abuse of mercury (?—ED.). It is more frequent among girls than among boys.

Noma generally begins by the appearance of a patch of induration situated on the mucous surface of the cheek near the labial commissure, and which is quickly surrounded by minute phlyctenulæ. The neighboring parts swell, the patch becomes black, it spreads on the surface and deeply, the soft tissues become involved, and even the bone is affected. After the removal of the sphacelated portions a hideous hole remains in the side of the cheek. Death occurs in seventy cases out of one hundred. In case of cure, extreme disfigurement, with adherent cicatrices, is apt to ensue.

This disease has sometimes been considered to originate in some disorder of the nervous system, particularly the vasomotors of the face. Krasine, however, is inclined to think that it is due to a cutting off of the blood-supply in an anæmic and broken-down person by the exercise of pressure. This pressure may in some cases be the result of lying on one side or the other during a prolonged illness, and is thus nothing more than a gangrene from decubitus.

Noma is generally limited to one side of the face: it rarely attacks the other side. Above, it may reach to the free border of the under eyelid and to the ear. It rarely

passes beyond the border of the lower jaw. The tongue and the eye of the affected side remain untouched. Noma attacks children because, in Krasine's opinion, the amount of blood in the body is relatively smaller than in adults, nutrition-changes are active, and anæmia is quickly produced and has grave consequences. Why the disease should attack little girls by preference is as yet inexplicable.

The treatment of noma has hitherto been by means of local remedies, caustics, the cautery, etc. Krasine, however, speaking from his point of view of the origin of the disease, urges improved nutrition, tonics, stimulants, etc., with simple antiseptic dressing.

A Case of Universal Xanthelasma Planum et Tuberosum. — At a recent meeting of one of the German medical societies (*Deutsche Med. Wochens.*, 1881, No. 23) Dr. Korach described the case of a woman of 25 suffering with chronic icterus, the result of total closure of the ductus choledochus of some standing. In addition to the typical patches of xanthelasma on the eyelids, the affection existed in the various parts of the body generally. While the extensor surfaces of the upper and lower extremities, as well as the nates, showed chiefly the tuberose form, the flexor surfaces displayed the flat or macular variety. In the palm of the hand and the volar surface of the fingers and thumb the patches of xanthelasma followed in confluent form the lines and furrows of the skin. Sometimes the patches coalesced into larger areas and were raised above the surface. Certain parts—as the nates, and the extensor surfaces of the knee and elbow—were thickly strewn with sago- to pepper-corn-sized xanthelasma tubercles. The color of the lesions was the typical dull yellow of xanthelasma.

Microscopic examination of the lesions showed hypertrophy of the connective tissue-cells of the corium, with an extraordinary finely-granular (fatty) degeneration or infiltration of the connective-tissue cells. There were no signs of hypertrophy or hyperplasia of the sebaceous glands.

Korach suggested that some cases resembling xanthelasma in external appearance are, in fact, commingled milium grains, as in the case of the affection published by Geber and Simon under the name xanthelasma, and which showed hypertrophy of the sebaceous glands. We have the choice either to give the name "xanthelasma" a purely symptomatic significance, including under this head all those xanthoma formations on the eyelids which chance to be of the same form, color, and general arrangement, or to take an anatomical stand-point, and only to designate as xanthelasma those cases where the lesions, in addition to presenting the typical external appearance, show the microscopic structure of fibroma lipomatodes. Korach urged the latter view, asserting that in all cases heretofore described, that of Simon and Geber excepted, the anatomical appearances were as above described. The xanthelasma in Korach's case was quite acute, having developed within a few weeks. It was accompanied by icterus with much pruritus of the skin, which lasted a month. After a year's stay in the hospital, the flow of bile into the intestine was finally established, and the icterus disappeared, the xanthelasma also fading away to a very considerable extent.

A Singular Case of Syphilis.—At a recent meeting of one of the French medical societies (*Bull. Gén. de Thérap.*, 1881, p. 378), M. Polaillon gave an account of a girl, 12 years of age, who had entered the hospital for a small ulcer on the sole of the foot. Five months and a half previously she had bought a new pair of shoes, and a projecting nail in one of them wounded the sole of the foot. A little later a lump appeared at this point, which soon broke into a deep ulcer. Later, others appeared in the neighborhood, and, joining, formed a phagedænic (?—Ed.) sore with hard, elevated edges, slightly excavated and painless, the girl continuing to go about on her feet. A month and a half after the appearance of the indurated lump the patient fell and struck the tibia. This resulted in the formation of a swelling in the bone, and finally in exostosis. There was no falling of the hair, generalized eruption, sores in the mouth, nor nocturnal pains. The patient was put to bed and the sores dressed with carbolic acid dressing, but no improvement took place. Iodide of potassium was then given, and in five or six weeks the patient was well. The absence of a history made the ulcer rather a difficult one to diagnosticate. Of course, Polaillon does not insinuate that the ulcer was anything more than a late lesion of some forgotten syphilis.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, AUGUST 27, 1881.

EDITORIAL.

WASTED OPPORTUNITIES.

TO the thoughtful mind, the waste of clinical opportunity observable in our large medical centres, and in Philadelphia perhaps no less than elsewhere, appears deplorable and discreditable. While the question of misplaced medical charity and of excessive gratuitous treatment has aroused no little attention, yet it must be remembered that the medical profession at large may be losers in more ways than through the pocket. The scores of young professional men who seize eagerly on each vacant position occurring in dispensaries and out-patient departments of hospitals too often forget that in entering upon the privileges of these posts they at the same time tacitly assume the obligation to themselves as well as to their profession to make the best possible use of the chances offered for recording unusual cases, experimenting with new remedies, or even the collection of statistics. That this may be done is shown by the fact that some of the most creditable papers appearing in our journals or read before our societies are from the few younger men whose only opportunity for clinical research is found in out-patient or dispensary practice. In fact, books reflecting honor on the writers and on the profession of this city have within recent years been written by those who have had no beds in hospitals nor even the large clinical advantages enjoyed by the considerable number of young hospital and dispensary doctors whose chief ambition at times appears to be to get through the day's work and have it over with, and who are content to prescribe "house-mixtures" and "Pill 3" or "4" as the quickest way of disposing of cases, while numerous problems to be solved are lying ready to hand and calling for study and investigation.

Bacon, in an oft-quoted aphorism, says that "every man is to be held a debtor to his profession; from the which as men of course do seek countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto." Would that this wholesome sentiment could be graven on the walls of every hospital and clinic!

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting was held at the Hall of the College of Physicians, Philadelphia, March 9, 1881, Dr. Albert H. Smith, President of the Society, in the chair.

Dr. Albert H. Smith read a paper entitled "Clinical Notes of a Case of Twin Pregnancy" (see page 744), and Dr. Wm. S. Little read one on "Symptoms (Reflex) in and about the Eye, due to some Affections of the Uterus or its Appendages" (see page 581). A vote of thanks was tendered by the Society to Drs. Smith and Little for their interesting communications.

DISCUSSION UPON DR. SMITH'S PAPER.

Dr. O'Hara said that in two cases of albuminuria of pregnancy this symptom improved under the use of the benzoate of calcium, but in a case of scarlatinal Bright's disease he had not seen any benefit. As regards the causation of puerperal albuminuria, he thought that if the condition were solely due to the pressure of the enlarged uterus upon the kidneys the albuminuria would continue until the termination of the pregnancy, and would not admit of relief by remedies. He inquired whether the lecturer believed that a diagnosis of twin pregnancy can always be made prior to delivery. Dr. O'Hara reminded the lecturer of a case in which twin pregnancy was suspected by him upon examination, but which proved to be only a case of single ovum. The speaker did not think that a twin pregnancy would be more likely to be associated with albuminuria than an equally large gravid uterus containing a single fœtus.

Dr. Horner, of Virginia, being invited to take part in the debate, thanked the lecturer for his interesting paper.

Dr. W. R. D. Blackwood inquired whether the lecturer had had any experience with the remedy in any other cases than in pregnancy. Differing from the last speaker, he believed a twin pregnancy more liable to be complicated with albuminuria than a single pregnancy, because in the latter pressure from the gravid uterus is more upon one kidney, generally the right, while in the twin pregnancy the pressure is made upon both kidneys.

Dr. Henry H. Smith asked in regard to the utility of the lime in the combination. Benzoic acid is generally known to be very useful in many forms of renal disease, and especially in catarrh of the bladder. Dr. Bird, in his work on the urine, refers to the value of this agent, and especially mentions enlarged prostate with irritable bladder. He, therefore, inquired whether it was the benzoic acid or the lime that was effective in the cases reported by the lecturer. An incidental advantage in giving the benzoic acid alone is that it can be given in solution, whereas the benzoate of calcium must be given in powder.

Dr. Albert H. Smith said that he had no doubt that the lime was of service. For a long time he had treated chronic Bright's disease with various forms of lime, especially lime-water. with good results, giving it in large doses, especially in anæmic cases, with iron and cod-liver oil, and saw decidedly better results than when it was omitted. He had remarked before that he had also tried the other salts of benzoic acid, potassium, and sodium, but without equal benefit. He then determined to combine the lime with the acid, and accordingly had some of this salt made for him; the results of the trial were highly satisfactory. In regard to the diuretic action, he would say that he had seen a decided increase in the flow of urine, not only in pregnancy but in other cases.

The question in reference to the relationship of twin pregnancy to albuminuria opened up the whole subject of the causation of albuminuria in pregnancy, which did not legitimately come under discussion; but he would say that in many cases the pressure appeared to be the sole cause of the symptom. We know that in fibroid tumors pressure produces congestion of the kidneys and albuminuria: if we admit this as a cause in enlargement of the uterus from other causes, then in twin pregnancy there is greater cause for albuminuria than in single, because there is greater enlargement and greater pressure.

With regard to the diagnosis, he called attention to the fact that the case referred to by Dr. O'Hara was examined before the seventh month. There was enormous adipose enlargement of the abdominal walls, and, as was afterwards shown, amniotic dropsy, and it was only possible at that time to give a probable diagnosis. In the great majority of cases, towards the termination of the pregnancy we can make a diagnosis easily between single and twin pregnancy. This matter of diagnosis by external manipulation, although a comparatively recent teaching, has now become so thoroughly incorporated into the obstetric art that no thorough course of school teaching is without it. Not only should every student of medicine be taught it theoretically, but to be competent for a degree it should be a matter of individual clinical instruction in every first-class collegiate course. The English and American comprehensive treatises are defective generally in their handling of this important subject, while the French and German systematic treatises on obstetrics have many pages devoted to its details, and we have in the exhaustive monograph of Pinard of Paris, and even more thoroughly in that of our distinguished fellow-countryman, Dr. Mundé, this subject so fully handled and made accessible to the profession as to leave no excuse for its not being an art at the complete command of all the newly-made practitioners of medicine; and yet the lecturer was sorry to have to admit that the only medical school in Philadelphia where external palpation is at all taught as a means of diagnosis, or any stress laid upon it, except in rectifying malpositions otherwise discovered, is at the Women's Medical College, where it is not only thoroughly taught, but the students practised by their professor of obstetrics, regularly and compulsorily, upon the Pinard & Budin manikin, in the diagnosis of presentations and positions by external manipulation, and, as opportunity offers, upon the living subject in the hospital. It is to be hoped that before long the great schools of our city will furnish the same complete instruction.

In reply to a question about the solubility of calcium benzoate, he said that eight or ten grains could be dissolved in a tablespoonful of any syrup and water. It is soluble in the mouth, and has not an unpleasant taste. The other salts of benzoic acid cause a residual nausea from their lingering upon the palate, which is not the case with the calcium salt.

A conversational meeting of the Society was held at the Hall of the College of Physicians, Philadelphia, June 8, 1881, Dr. Albert H. Smith, President of the Society, in the chair. Dr. Carl Seiler read a paper on "A New Form of Galvano-Cautery Battery" (see page 749).

DISCUSSION.

Dr. A. D. Hall approved of the battery, and indorsed its claims for convenience of application. In a case of purulent otitis media, with perforation of drum of the ear, in which the stump of a polypus kept up the irritation,

he had applied the usual remedies without effect. He then thought of the galvano-cautery, and Dr. Seiler applied it with his battery with excellent result. This case demonstrated the prompt and efficient working of the battery in a most gratifying manner. This would be of great value in the treatment of fistula of the lachrymal sac, and is the only method that will cure this difficulty, the flow of the tears preventing the ordinary actual cautery from acting.

Dr. A. H. Smith noticed the convenience of use and portability of the apparatus, and said that any form of mechanism which tends to make the galvano-cautery more available would be of great service, especially in gynæcology. He had found the old forms of battery so troublesome and unreliable that he had adopted the Paquelin cautery, on account of its ease of management and comparative cheapness. It has, therefore, almost entirely driven out the moxas and actual cautery from surgery; and yet there are some cases of amputation of the cervix where an elevated position of the diseased mass, with firm fixation, and a close vulvar outlet, render its use difficult, and a galvano-cautery with wire écraseur, perfectly reliable and manageable, would be a great desideratum.

Dr. J. Solis Cohen took the opportunity of expressing his admiration of the mechanism by which the elements are lifted in and out of the fluid with a facility which was obtained in no other form of battery with which he was acquainted. He regarded it as a very great improvement over the ordinary galvano-cautery batteries. For ordinary purposes it supersedes the Paquelin *thermo-cautère*. The reason why galvano-cautery failed of general adoption before was because those using it often did not understand the physical laws of electricity; the battery would get out of order, and they would not know why. The best plan under such circumstances would be to call in the services of an electrician, who would put the battery in good order; the expense would be money well invested.

Dr. Blackwood regarded the form of office battery presented as a decided advance, the old form being expensive to get and to keep in good repair. The usual difficulty in batteries is on account of the connections, which get rusty and out of order.

Some years ago he published a communication in reference to constructing batteries, and showed how cheaply they could be made. Subsequently many letters of inquiry were received, showing the interest taken in the subject. He subsequently explained in the *Medical and Surgical Reporter* how to make a cheap galvanic battery.

He saw an advantage in connecting below the fluid rather than above it. In the ordinary plan it is exposed to the fumes of the fluid, and the connection may thus be entirely eaten away. Of course, when this happens, the battery refuses to do its work until it is put in good order again.

Dr. Seiler, in reply to a question as to the maker of the battery and the cost, said that he made the one presented at a cost of not over five dollars, but it was rather rough. Flemming and Talbot, of this city, propose to make them shortly in an improved case, at a cost not to exceed that of an ordinary portable battery.

On motion, the thanks of the Society were tendered to Dr. Seiler for his interesting and valuable communication. F. W.

A conversational meeting was held at the Hall of the College of Physicians, Philadelphia, June 23, 1881, Dr. Albert H. Smith, President of the Society, in the chair. Dr. George C. Harlan read a paper on "Fatal Otitis" (see page 750), and exhibited a number of interesting specimens and preparations.

DISCUSSION UPON FATAL OTITIS.

Dr. Chas. S. Turnbull expressed his interest in the valuable paper, especially as it treats of such an important subject to the practitioner and illustrates the dangers of neglecting chronic suppurative ear disease. He would say a few words as to the pathology of abscess of the cerebellum accompanying chronic purulent inflammations of the middle and internal ear. Such are now generally recognized as occurring in connection with chronic purulent otitis media or interna, and are caused by the escape of pus through a perforation in the roof of the tympanum, or through the labyrinth and internal auditory canal, and are the result of pressure. In several cases in which he had examined, and subsequently made post-mortem examinations, he had found a distinct abscess in the substance of the cerebellum, within a thoroughly organized abscess-wall, and enclosed in a pyogenic membrane. Politzer, Gruber, Zuckerkandl, Weber-Liel, and most of the Vienna and Berlin aurists, acknowledge that abscesses of this kind are generally caused by direct pressure, which causes breaking down of the cerebellar tissue, referring, of course, to those in which there is no direct extension of the inflammation. Too much cannot be said with regard to the danger of cerebellar disease as a result of neglected purulent otitis media: they may be fatal even when the internal ear is not at all involved.

As regards the use of strong solutions of nitrate of silver, the speaker could not approve, but rather deprecated, their use in such cases. The insufflation of powders is now used in preference to such applications. Experience has taught us to rely upon boracic acid chiefly, but iodoform or alum may also be employed with benefit. He would especially recommend *finely powdered* boracic acid insufflations in purulent disease of the

middle ear. Polypi, of course, should be removed, not by the forceps, but by the wire loop or snare of Wilde or Gruber. The reason that so few fatal cases are reported at present is that physicians of the present day, as a rule, have a much better knowledge of diseases of the ear, and conservative surgery is the rule rather than the exception. If boracic acid is used for insufflation, it should be finely powdered; coarse powders do more harm than good. When properly applied, it is one of the best antiseptic remedies we possess for the treatment of purulent inflammation of the middle or internal ear.

Dr. J. L. Ludlow said that he had treated a great many of these cases with discharge from the ear, and considered that there is a great deal of groping in the dark in regard to them. He had found experts, even, making serious mistakes in diagnosis. He referred to a case of a physician who, after an attack of pneumonia, suffered with agonizing pain in his ear, radiating also from the mastoid process down the cervical region and to the front on the face. Two specialists saw him in consultation with Dr. Ludlow, but could not agree as to the existence of mastoid inflammation. The speaker found a swelling under the ear in the fossa, pressure upon which caused bulging in the floor of the auditory meatus. The next morning the abscess opened spontaneously in front of the membrana tympani. Here was a case that narrowly escaped trephining of the mastoid cells, but entirely recovered without it.

Many cases of cold in the ears get well without special treatment. In Barbadoes the negroes squeeze cockroaches into the ear for earache. The treatment in civilized communities varies. He himself usually preferred a preparation of hyoscyamus in oil; he had great confidence in it, as it gives great relief.

Dr. C. B. Nancrede reported a case of a man, fifty years of age, who entered the Episcopal Hospital with facial paralysis, and an extensive abscess involving the left temporal region, though not much in advance of the ear. The temporal bone was principally affected, and, upon examination, was found to be bare for several inches, especially over the mastoid process. The patient was completely deaf in the left ear. After free opening and drainage was accomplished, he was completely restored, the bone became covered, and he regained his hearing.

Dr. F. Woodbury observed that an acute otitis media often caused necrosis of the chain of bones and permanent damage to hearing in the course of a few days, and he considered it highly reprehensible for a physician to simply order some drops for the earache without examining into the condition of the membrana tympani, which is accomplished with facility even in young children. He had been surprised by the curative effects of simple treatment upon perforations of the membrane, when recent. He urged that the recommendations of the paper might not pass unheeded: any patient suffering with a discharge from the ear should be regarded as being threatened with fatal cerebral disease.

He mentioned the case of a lady patient, who, as a child, and while under the care of a homœopathic physician, had a neglected ear-discharge following scarlet fever. When the speaker examined her ears, he found that the membrane and chain of bones were entirely gone on both sides. Although slightly deaf, her hearing was fairly preserved; some days she could hear better than others. She did not use an ear-trumpet.

In conclusion, the use of potassium permangate solution was opposed by the speaker on account of the oxidizing and hence caustic effects of the salt. He believed that he had seen perforation of the delicate membrane of the tympanum due to the well-known action of the salt upon organic matter. The experience of the lecturer was requested upon this subject.

Dr. Harlan, in closing the discussion, said that there was one important point in the anatomy of the petrous portion of the temporal bone that deserves discussion,—*i.e.*, the asserted facility of communication between the internal ear and the internal auditory meatus, whether or not fluid does pass readily from the labyrinth to the general cavity of the skull. He referred to the statement of Hyatt, that the fluid in the internal ear has the same composition and is probably identical with the cerebro-spinal fluid, and the conclusion that in the normal ear it passes readily from the labyrinth to the brain. After careful examination of the skull in a case which had suffered with a chronic discharge, and in which he had observed particularly that the labyrinth was entirely covered, but was not carious, he was unable to find any openings in the cribriform fascia, or at least none large enough to permit the passage of fluid. The colored injection, however, passed readily through it. He then procured a normal temporal bone and poured the liquid colored with aniline blue into the labyrinth, and with a tube endeavored to force the fluid through, but found that there was not the slightest passage of the injection. He was therefore led to conclude that in the former case the communication was due to a pathological cause.

In regard to the potassium permanganate, properly diluted, he did not think that it would cause perforation of the membrane, but it is generally caused by the disease for which the remedy is used.

In reference to the mistakes of aural surgeons, they being like other men, he supposed that they cannot claim infallibility, but thought that they probably would be less likely to make errors of diagnosis in a class of cases with which they are continually

brought in contact than physicians, who see such cases only occasionally. The instance quoted by Dr. Ludlow was a beautiful illustration of a case of mastoid abscess opening spontaneously. This was a rare result; but the patient might have been saved much suffering if the operation referred to had been performed early in the case. The operation is not a serious one, and has been frequently performed, with only one fatal result, which was not attributable to the operation. Where there is purulent inflammation in this region, it is only common sense to lay open the part freely and permit the discharge of pus. There is no portion of the human body in which it is more important to give exit to pus than in disease of the mastoid cells.

A vote of thanks was unanimously tendered to Dr. Harlan for his instructive and interesting paper.

EXAMINATION OF THE SCHUYLKILL WATER.

Dr. Leffmann read a "Note on Schuylkill Water in its Hygienic Relations." (See page 756.)

Dr. C. K. Mills inquired as to the effect of the cemeteries upon the banks of the Schuylkill upon the potability of the water and its wholesomeness.

Dr. Blackwood called attention to the amount of sewage that flows into the Schuylkill from the large towns which it drains in its course. For instance, the entire drainage of the Little Schuylkill region goes down the two rivers. So impure is the stream that near Pottsville the fish cannot live in it,—perhaps owing to its containing sulphuric acid. Doubtless it settles and purifies itself a good deal by oxidation on its way down; but it receives the drainage of Norristown, Spring Mills, Conshohocken, and numerous other populous places nearer the city, so that the amount of drainage coming down the Little Schuylkill region makes very little difference.

With regard to the Delaware water, he inquired where the sample was taken from. Above Trenton the Delaware must be comparatively pure, but near Kensington it is very foul. Gunner's Run is simply an open sewer, and the supply for the water-works is pumped directly from its outlet for delivery in Kensington for drinking-purposes.

With reference to the cemeteries, the popular idea is that the nature of the ground and the direction of the rock-strata at Laurel Hill carry the drainage away; but much of it goes into the Schuylkill, as does that from Glenwood and West Laurel Hill. Under ordinary circumstances a dead body affects the ground only to a very slight extent; but in rainy seasons there is washed into the Schuylkill a great deal of impurity from the cemeteries.

Dr. Leffmann, in reply, said that Laurel Hill does not seriously pollute the water. The Park lines extend for five miles along the river, which gives it time to purify itself before reaching Fairmount. In this distance there is only one stream that really bears sewage, and that empties into the river near the Girard Avenue Bridge.

The samples examined were taken from hydrants, which is the best way of getting at the water as delivered.

The Schuylkill in its upper part contains much iron and sulphuric acid; it then passes through a limestone region, where these are carbonized and precipitated, carrying with them organic matter. It is further purified by the slow current and the breadth of the stream, especially near Manayunk, which absorbs the air and favors oxidation.

On motion of Dr. H. H. Smith, the Committee on Hygiene were authorized to publish the results of Dr. Leffmann's examination of the water-supply of Philadelphia. The thanks of the Society were also tendered him by the usual vote. F. W.

REVIEWS AND BOOK NOTICES.

THE FIRST BABY: HIS TRIALS, AND THE TRIALS OF HIS PARENTS. By JEROME WALKER, M.D., Physician to the Sea-Side Home for Children, Coney Island, etc. New York, Brown & Derby, 1881. 12mo, pp. 203.

A companion book to "Helen's Babies," we should judge from the style and contents. We learn from the introduction that the present work is a revised edition of a former book by the same author, called "How We raised Our Baby," which has enjoyed some popularity. Dr. Walker takes us into an imaginary family circle, gives all the nursery tattle and old wives' gossip connected with the advent and early months of baby-life, and draws a picture of domestic felicity which the hardened bachelor may well chuckle with self-gratulation at having escaped. Amid this chaff certain grains of medical wisdom are asserted to lie concealed. We have not, however, found such, and would recommend lay and medical readers alike to abjure this gallimaufry in favor of any one of the really scientific and practical little books on the care of children which have recently appeared.

A TREATISE ON CONTINUED FEVERS. By JAMES C. WILSON, M.D., Physician to the Philadelphia Hospital, etc. With an Introduction by J. M. Da Costa, M.D. New York, William Wood & Co., 1881. 8vo, pp. 365.

This excellent and practical treatise is one of "Wood's Library of Standard Medical Authors," and is above the average even of that well-selected series. Simple continued fever, influenza, cerebro-spinal fever, enteric or typhoid fever, typhus fever, relapsing fever, and dengue are each treated of in successive chap-

ters with as much fulness as the space allows, and with a judicious mingling of the scientific and more purely practical. Dr. Da Costa's introduction is a graceful exordium to the work of his younger professional brother, and, while nothing more than a brief account of this distinguished physician's personal views as to the general management of fever cases, gives a pleasing *imprimatur* to the work following.

A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs. By Samuel W. Gross, A.M., M.D., Lecturer on Venereal and Genito-Urinary Diseases in the Jefferson Medical College of Philadelphia, etc. With Sixteen Illustrations. Philadelphia, Henry C. Lea's Son & Co., 1881. 8vo, pp. 174.

Dr. Gross's aim has been to supply, in a compact form, practical and strictly scientific information especially adapted to the wants of the general practitioner. He considers the subjects of impotence, sterility, spermatorrhœa, and prostatorrhœa in succession, giving illustrative cases from time to time, with a full account of the treatment. Dr. Gross considers that sterility in the male has not received so much attention as it deserves. In one unfruitful marriage out of six the male is at fault. A peculiar theory of the author, and one the validity of which we fancy will not be conceded by some other specialists, is that masturbation is the cause of stricture.

GLEANINGS FROM EXCHANGES.

Milk Indigestion in Young Children.—Dr. Eustace Smith, in an article on this subject in the *British Medical Journal* (vol. i., 1881, p. 877), says that when indigestion is due to catarrh of the stomach it is readily amenable to treatment. All that is necessary is to put a stop to the milk for a day or two, and to clear away the curd by a full dose of castor oil. If, however, the fault be in the milk, and not in the digestive organs of the child, some change in the method of feeding is indispensable. In one case where curdling took place, with resultant griping and indigestion, and where various remedies had failed, Dr. Smith at last adopted the plan of giving the child barley-water from a bottle immediately before he took the breast, in the hope that by this means the milk might be diluted directly it reached the stomach. This method succeeded perfectly, and the child had no further unpleasant symptoms.

In cases of gastric catarrh, when the complaint is acute and severe, vomiting is usually the most prominent symptom. Under such circumstances milk becomes a positive poison, and no hope of alleviating the symptoms can be entertained while this diet is persisted with. In the case of an infant two months old, brought up by hand and fed upon milk and barley-water, uncontrollable vomiting and diarrhœa had reduced it to the last extremity. Dr. Smith directed a weak mustard poultice to the epigastrium. The milk was stopped and the child fed with weak veal-broth and thin barley-water mixed together in equal proportions and given cold at intervals with a teaspoon. A few drops of brandy were given occasionally, as seemed desirable. As a result of this treatment the vomiting stopped at once, and the child, when seen three days afterwards, was found to be much improved, and was cured by the end of a few days' further treatment. The most important part of the treatment in this case was the substitution of veal-broth for milk. Directly the supply of fermentable matter was stopped, fermentation ceased, acid was no longer formed, and the digestive organs returned to a healthy condition. Here the derangement was acute.

Another case of a chronic character is cited by Dr. Smith, where a little girl ten months old had been fed first with milk, then wtth farinaceous food, and later with beef-tea. She vomited everything and was growing extremely emaciated. Such a case is treated, he says, by restricting the diet to equal parts of weak veal-broth and thin barley-water, given cold, in small quantities at a time, by warmth to the belly and extremities, by perfect quiet, and by suitable remedies. The best sedative is Fowler's solution,—half a drop for the dose,—given with a few grains of bicarbonate of sodium in some aromatic water. After a few days of such treatment the power of digesting milk usually returns. But at first it should be given sparingly, freely diluted with barley-water, and only once or twice in the day.

Looseness of the bowels is a common consequence of milk indigestion. Such cases, seen in the early stage, are sometimes spoken of as cases of "inactive liver," the white stools being supposed to be merely the result of insufficient biliary secretion. Cholagogues are, however, in such cases quite useless. The stools are white because they consist of curd mixed with the farinaceous matter which is usually given in large quantities at the same time; and their character can only be improved by a complete change of diet. When a chronic diarrhœa is regularly established, the cases are very often called "consumption of the bowels." It is needless to say that they have no relation at all to "consumption," but are a purely functional derangement, a chronic catarrh of the bowels, excited and maintained by indigested food.

In another case cited by Dr. Smith, where a child of fourteen months was wasting away with chronic diarrhœa, the diet of milk and sago was changed, and the child was fed in-

stead with whey and cream, veal-broth and barley-water, yolk of eggs, and "Mellin's food" dissolved in barley-water. Iron and arsenic were also administered, and later quinine and cod-liver oil. Dr. Smith does not think well of beef-tea for children, and prefers veal-broth.

WHITLOW.—In a clinical lecture on whitlow (*Medical Times and Gazette*, vol. i., 1881, p. 667) Mr. Christopher Heath says that the subject is meagrely treated of in the text-books. If met with in the earliest stage, when the finger has just begun to redden and tingle, a twenty-grain solution of nitrate of silver, or the silver stick wetted and lightly pencilled over the affected part and a little beyond, checks it at once. When the whitlow is a little more severe,—that is, when pus forms about the nail or the tip of the finger,—the cuticle, which is insensitive, may be incised. Occasionally, however, when a foreign body has found its way beneath the nail, pus forms there and gives rise to excruciating agony from the tension beneath unyielding structures. Judicious cutting away of the nail will relieve this if near the margin; but if near to the base, it is much better to pare down to the nail with a sharp knife until the matter is let out than to resort to the unnecessary cruelty of removing the entire nail.

The third kind of whitlow is really an acute necrosis of the terminal phalanx, following periostitis and suppuration beneath the periosteum, just as it does in the case of a long bone. A very slight injury—the prick of a needle or a pin—may set it up. After some hours' uneasiness, the pain becomes acute and throbbing, and entirely prevents the patient sleeping. If timely relief is not given, pus will very slowly make its way to the surface of the finger, but never up the sheath of the tendons, and, when discharged, will leave the greatest part of the phalanx bare and dead behind it. A timely and free incision is the only mode of saving the phalanx, and cannot be resorted to too early; for, if no pus be present, the inflamed periosteum will still be divided with great relief to suffering. The finger should be held firmly on a table, and the surgeon, entering his knife just above the transverse interphalangeal mark in the skin, should cut boldly down to the bone in its whole length from base to apex. When, as so often happens, these cases have been treated domestically with "soap and sugar" and poulticing until the end of the finger is riddled with sinuses, there is nothing to be done except to extract the necrosed phalanx as soon as it is loose and to bring the finger into shape by careful water-dressing applied in strips. The base of the phalanx usually survives, giving a point of attachment to the tendons.

Inflammation of the skin and subcutaneous tissues may occur in any part of the finger. Incisions must here be made with care, so as not to open the theca or sheaths of the tendons, which then invariably slough, and the patient is left with a useless finger. For this reason incisions on each side of the finger are safer than one in the centre, that may unawares let out the tendons, which will look perfectly healthy at the moment, but soon become sodden and softened.

The synovial sheaths of the flexor tendons of the thumb are often, though not always, in direct communication with the synovial membrane of the annular ligament of the wrist, and hence pus is rapidly conducted in this way up to and, if not relieved, into the forearm.

There is much difference in the importance of saving the different digits. The thumb must be saved at all hazards. The middle and ring fingers are comparatively unimportant, and, if stiff, are apt to be in the way. A stiff forefinger is better than none.

EARTH-WORMS AND ANTHRAX.—A report has been made by M. Villemin in the name of a commission appointed by the Académie de Médecine to investigate the statements of M. Pasteur as to the presence of the germs of anthrax bacteria in the soil, and their transportation by earth-worms. These statements of M. Pasteur have been contradicted by M. Colin, of Alfort. In the investigations of the commission, they first inoculated five guinea-pigs with earth taken from the soil over a trench in which animals dead of anthrax had been buried twelve years previously. All the guinea-pigs died,—the first four from septicæmia, the fifth from well-marked anthrax; and the latter presented numerous bacteria in the blood of the heart and the spleen, which organ was considerably enlarged. A second similar series of guinea-pigs were inoculated with earth from above a pit in which animals dead of the disease had been buried for three years. The first four of these also died of septicæmia, and the fifth of anthrax, with characteristic bacteria. A third series were inoculated with "virgin soil,"—*i.e.*, earth from a spot in which, within living memory, no animal dead of anthrax had been buried. All of these continued well, presenting only at the point of the inoculation a small nodosity the size of a nut and consisting of an abscess enclosed in a pyogenic membrane. The first two of these experiments with the suspected earth were repeated, six guinea-pigs in all being inoculated. Of these all died,—five of septicæmia, the sixth of anthrax. Two other guinea-pigs were inoculated with blood from the animals to which anthrax had been communicated in the first two series of experiments, and both died of the same disease. A drop of blood taken from the ear of one and "sown" in some decoction of food reproduced pure and abundant anthrax bacteridia, Some worms were also taken from the earth over the pits in which the animals had been buried three and twelve years before, and

their excrement (the worms being still alive) was diluted with a little distilled water, and with it three guinea-pigs were inoculated. Of these two died of septicæmia, and the third from anthrax. Other three guinea-pigs were inoculated with the excrement of worms taken from the soil beneath which, during the Commune, human bodies had been interred. One of the guinea-pigs died of septicæmia; the other two continued well. Lastly, the excrement of worms collected over the trench in which the animals had been buried for twelve years, and treated by "cultivation," gave rise to a rapid production of bacteridia, which, inoculated into two guinea-pigs, caused the death of both by anthrax. The experiments and report thus give a triumphant corroboration to the assertions of M. Pasteur.—*Lancet*, vol. i., 1881, p. 877.

FAURÉ'S SECONDARY OR STORAGE BATTERY FOR MEDICAL USE.—Dr. George Buchanan (*British Medical Journal*, vol. i., 1880, p. 914) is the first practitioner to have used the new storage battery, the invention of which was hailed with so much enthusiasm by Sir William Thompson, the physicist, a month or so ago. The new battery consists of a cylindrical vessel of lead nine inches high and five inches in diameter, with a leaden bottom, but open at the top; in this is packed a kind of cushion which has the power of absorbing electricity. To this vessel are attached the poles of a working battery; and so long as the connection is maintained, the vessel accumulates the electricity flowing into it. When charged, it can be detached from its connection and kept for a long time, or carried from place to place like the jars of compressed carbonic oxide used for anæsthetic purposes. When required for use, the cushion, which should always be kept moist, is wetted with dilute sulphuric acid, and wires connecting are attached to its poles, when it is converted into a powerful battery. Dr. Buchanan has recently removed a nævoid tumor of the tongue by means of this battery, using a platinum wire écraseur. It can be managed without the least difficulty.

SKIN-GRAFTING FROM THE DEAD SUBJECT.—Dr. Girdner (*New York Medical Record*) has done this with success in a burned patient, the grafts having been taken from a suicide six hours after death.

MISCELLANY.

PRIZES OF THE ALUMNI ASSOCIATION OF THE ALBANY MEDICAL COLLEGE.—The following prizes are open to competition during the coming year: 1. A "Surgical Prize" of one hundred dollars for the best essay on "Colles' Fracture: its Pathology and Treatment," to be accompanied by a pathological specimen illustrating the fracture with or without dislocation of the ulna, or a careful dissection of the hand, wrist, and forearm. 2. A "Surgical Prize" of fifty dollars for the second best essay on the above subject. 3. A "March Memorial Prize" of one hundred dollars for the best essay on "The Pathology and Treatment of Morbus Coxarius." 4. An "Armsby Memorial Prize" of one hundred dollars for the best essay containing "A Minute Description of the Genito-Urinary Organs of the Male," together with a carefully-dissected specimen of the same. 5. A "McNaughton Memorial Prize" of one hundred dollars for the best essay on "Antisepsis in the Treatment of Diseases."

Essays and specimens, designated by a motto and accompanied by a sealed envelope enclosed with the same motto and containing the name and address of the author, must be sent to the Secretary, Dr. W. G. Tucker, by the 14th day of February, 1882. The committee to examine the essays for this year will consist of Drs. A. Van Derveer, J. S. Mosher, and Lorenzo Hale; and they reserve the right to reject any or all of the essays if not deemed worthy.

All specimens are to be deposited in the New Museum of the College, properly labelled.

OBITUARY.—Dr. Maurice Raynaud, the distinguished and eloquent French physician who was to have delivered one of the addresses before the late International Congress in London, died quite suddenly on the 29th of June, in the forty-seventh year of his age.

Dr. Raynaud was a cultivated physician, having written several medico-literary essays, among others one on "The Physicians of Molière's Time," which was quite well known. He was the most eminent and proper candidate for the chair of History of Medicine in the Faculty of Paris when this became vacant a few years since; but Raynaud was a man of decided religious convictions, and this, in the eyes of the atheistic bigotry which miscalls itself "liberalism," and which just now rules France, was sufficient to condemn a man, however illustrious by his merits.

TREATMENT OF RINGWORM OF THE HEAD.—Dr. Besnier recommends the following:

℞ Acidi boracici, gr. xv;
Sulphur. sublimat., gr. xv;
Vaselini, ℥j.

GLYCEROLE OF THYMOL.—

℞ Thymol, 1.0;
Glycerin, 25.0;
Alcohol, 25.0;
Water, enough to make 500.0.—M.

Useful in pityriasis.

THE USE OF A COMBINATION OF SALICYLIC ACID AND CAMPHOR AS A SURGICAL DRESSING is suggested by Dr. Lajoux, with the idea that the salicylic acid would act on the albuminoid ferments, and the camphor on the organisms of wounds. The compound has been employed by Dr. Heural, it is said, with satisfactory results. It was far more effica-

cious than any other application in a case of ulcerated lupus in a syphilitic patient, the sores immediately assuming a more healthy aspect and soon healing. A phagedænic ulcer of the fourchette which had lasted for six months was healed in a fortnight.

SIMPLE REMEDY FOR CHAFE.—Bathe parts well in tepid water, dry well with soft cloths, and apply, by means of a soft sponge or cloth, the following:

℞ Zinci acetatis, gr. xv;
Morphiæ acetatis, gr. ij;
Glycerin., aq. rosæ, ää ℥ij.—M.
Ft. sol.
Sig.—Apply to chafed parts twice or thrice a day.

ADMINISTRATION OF MEDICINE BY THE NOSTRILS.—By Dr. Fernet's suggestion, the patient is laid on his back, with head and shoulders slightly raised by pillows. The liquid is to be poured slowly into the back part of the nares by means of a very pointed spoon or other agent, and when it reaches the pharynx it induces a movement of deglutition. Adroitly performed, food may be given in this way as well as by the mouth.

STYPTIC COLLOID.—

℞ Collodion, 100.0;
Carbolic acid, 10.0;
Tannic acid, 5.0;
Benzoic acid, 5.0.

Mix the ingredients in the above order. It instantly coagulates blood, forming a consistent clot under which wounds will readily heal.

CURE FOR RINGWORM (MORRIS).—

℞ Thymol, 0.5 to 1.0;
Chloroform, 4.0;
Olive oil, 12.0.—M.

The thymol destroys the fungus, the oil prevents irritation and rapid evaporation, while the chloroform facilitates the absorption of the active ingredient by acting on the sebaceous glands.

WHAT IS FILTH?—The English health authorities have decided that decaying vegetable and animal matter, rotten fish, the refuse of slaughter-houses, and human excrement are to be regarded as "filth." "Ordinary stable and cow-house dung," however, it appears, does not come under this designation. Good news to those who consider stable odors "healthy."

AN IMPROVEMENT IN THE PRESERVATION OF DEAD BODIES AT THE MORGUE.—The municipal authorities of Paris have adopted the refrigerating apparatus of MM. Nignon and Rouart, at a cost of about ten thousand dollars. Bodies are frozen and can then be kept on view indefinitely without decomposition. The atmosphere of the Morgue is also much improved.

AN UNNECESSARY SCARE.—Lincoln & Bennet, the famous London hat-makers, assert that no change for the smaller has taken place in hat-measurements of late years.

NOTES AND QUERIES.

PHILADELPHIA, August 17, 1881.

EDITOR OF THE PHILADELPHIA MEDICAL TIMES:

DEAR SIR,—My mite of contribution to the discussion on "Vaccination" at the meeting of the Philadelphia County Medical Society, as printed in the *Times* of August 13 (p. 729), is certainly very "*funny-graphically*" reported. I said, or *tried to say*, that I had used animal vaccine very largely, and had seen many of the spurious vaccinations described by Dr. Welch. They had occurred in the use of every form of animal vaccine (crusts, cones, quills, and points), procured from different sources of supply. As a curious fact, I stated that I had seen the "cowpox raspberry" and a typical vaccine vesicle side by side on the same arm and resulting from the use of the same point of virus. As a contribution to the value of vaccination by the much-abused public vaccine physicians, I stated that in a series of over six thousand successful vaccinations in the district under my care I had been able to trace only ten cases of *varioloid* occurring subsequently to the operation. It is easily to be seen how the printed report could be "fixed up" from the above. But as I have long advocated the *exclusive* use of animal vaccine in the public service, and have been a very large user of it in public and private practice, and with generally satisfactory results, this note of correction seems plainly due from Yours very truly,

HENRY F. BAXTER,
242 Catharine Street.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM AUGUST 6 TO AUGUST 20, 1881.

MCKEE, J. C., MAJOR AND SURGEON.—By direction of the Secretary of War, the leave of absence on Surgeon's Certificate of Disability granted in S. O. No. 177, August 19, 1880, is extended three months. Paragraph 3, S. O. 189, A. G. O., August 18, 1881.

WHITE, C. B., MAJOR AND SURGEON.—Died at Wilton, Conn., August 10, 1881.

STERNBERG, GEO. M., MAJOR AND SURGEON.—Relieved from duty in connection with the National Board of Health, to proceed from Baltimore, Md., to San Francisco, Cal., and report to Commanding General, Department of California, for assignment to duty. S. O. 182, A. G. O., August 10, 1881.

HUBBARD, V. B., ASSISTANT-SURGEON.—Promoted to the rank of Major and Surgeon in the Medical Department, to take effect from the 10th of August, 1881, vice White, deceased.

CORSON, J. K., CAPTAIN AND ASSISTANT-SURGEON.—The leave of absence granted him in S. O. 61, May 31, 1881, Department of Arizona, extended two months. S. O. 179, A. G. O., August 6, 1881.

HALL, J. D., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for three months' extension, to take effect on final adjournment of G. C. Martial, of which he is Judge-Advocate. S. O. 141, Department of Dakota, August 4, 1881.

SEMIG, B. G., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for six months, with permission to leave the Department of the Platte. S. O. 182, c. s., A. G. O.

PERLEY, H. O., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for four months. S. O. 178, A. G. O., August 5, 1881.

BUSHNELL, GEO. E., ASSISTANT-SURGEON.—Granted leave of absence for fourteen days. S. O. 145, Headquarters Department of Dakota, August 9, 1881.

BUSHNELL, GEO. E., ASSISTANT-SURGEON.—Relieved from duty at Fort Yates, D.T., and to report to Commanding Officer, Fort A. Lincoln, D.T., for temporary duty, on expiration of leave of absence. S. O. 146, Headquarters Department of Dakota, August 11, 1881.